

THE ROLE OF EDUCATION IN GLOBAL COMPETITIVENESS

HEARING OF THE COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS UNITED STATES SENATE ONE HUNDRED NINTH CONGRESS

SECOND SESSION

ON

EXAMINING THE ROLE OF EDUCATION IN GLOBAL COMPETITIVENESS,
FOCUSING ON THE KNOWLEDGE OF MATH AND SCIENCE, AND THE
RESPECTIVE HIGH SCHOOL REFORM AND NATIONAL SECURITY LAN-
GUAGE INITIATIVES

FEBRUARY 9, 2006

Printed for the use of the Committee on Health, Education, Labor, and Pensions



U.S. GOVERNMENT PRINTING OFFICE

26-056 PDF

WASHINGTON : 2006

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2250 Mail: Stop SSOP, Washington, DC 20402-0001

COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

MICHAEL B. ENZI, Wyoming, *Chairman*

JUDD GREGG, New Hampshire
BILL FRIST, Tennessee
LAMAR ALEXANDER, Tennessee
RICHARD BURR, North Carolina
JOHNNY ISAKSON, Georgia
MIKE DEWINE, Ohio
JOHN ENSIGN, Nevada
ORRIN G. HATCH, Utah
JEFF SESSIONS, Alabama
PAT ROBERTS, Kansas

EDWARD M. KENNEDY, Massachusetts
CHRISTOPHER J. DODD, Connecticut
TOM HARKIN, Iowa
BARBARA A. MIKULSKI, Maryland
JAMES M. JEFFORDS (I), Vermont
JEFF BINGAMAN, New Mexico
PATTY MURRAY, Washington
JACK REED, Rhode Island
HILLARY RODHAM CLINTON, New York

KATHERINE BRUNETT MCGUIRE, *Staff Director*
J. MICHAEL MYERS, *Minority Staff Director and Chief Counsel*

C O N T E N T S

STATEMENTS

THURSDAY, FEBRUARY 9, 2006

	Page
Enzi, Hon. Michael B., Chairman, Committee on Health, Education, Labor, and Pensions, opening statement	1
Kennedy, Hon. Edward M., a U.S. Senator from the State of Massachusetts, opening statement	3
Prepared statement	4
Spellings, Hon. Margaret, Secretary, U.S. Department of Education	6
Prepared statement	32

ADDITIONAL MATERIAL

Statements, articles, publications, letters, etc.:	
Senator Ensign	39
Senator Dodd	40
Senator Murray	42
Response to questions of Senator Enzi by Secretary Spellings	44
Response to questions of Senator Ensign by Secretary Spellings	49
Response to questions of Senator Hatch by Secretary Spellings	51
Response to questions of Senator Sessions by Secretary Spellings	52
Questions of Senator Murray to Secretary Spellings	55

THE ROLE OF EDUCATION IN GLOBAL COMPETITIVENESS

THURSDAY, FEBRUARY 9, 2006

U.S. SENATE,
COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,
Washington, DC.

The committee met, pursuant to notice, at 10:00 a.m., in Room SD-106, Dirksen Senate Office Building, Hon. Mike Enzi, chairman of the committee, presiding.

Present: Senators Enzi, Gregg, Alexander, Burr, Isakson, Sessions, Kennedy, Bingaman, Murray, Reed and Clinton.

OPENING STATEMENT OF SENATOR ENZI

The CHAIRMAN. I will call to order the hearing on The Role of Education in Global Competitiveness.

It is my pleasure today to welcome the Secretary of Education, Margaret Spellings, to discuss the President's recently announced Global Competitiveness Initiative, and other administration education priorities that will be the cornerstone of the national strategy to address these challenges of a global economy.

We do have the unique opportunity to strengthen and focus our education training to ensure that as individuals, and as a Nation, we have the knowledge and skills that we need. We must ensure that America's students are the best in the world, that they speak the language of success, and that as a country we get more than a passing grade.

In April of 2005, Secretary Spellings appeared before this committee and testified with Elaine Chao, the Secretary of Labor, and it was on this same topic, the topic of global competitiveness. At that hearing, the committee's goal was to find out how we can provide our children with an education today for tomorrow's jobs.

In addition, we held a roundtable on higher education with college presidents and corporate executives, where they cited a need for a well-educated and skilled workforce. Without an educated workforce we are certain to lose our preeminence in the world to developing nations that are quickly growing and innovating at a much faster rate than we are. If our students and workers are to have the best chance to succeed in life, we need to focus all of our Federal education and training programs from pre-kindergarten through postsecondary education to on-the-job training and continuing education. To be competitive in a global economy we must ensure coordination and accountability in our education and workforce programs across all agencies, departments and levels of Gov-

ernment. To stay in the competitiveness race, and to win it, we must ensure that school is never out and learning is never over.

In reading "The Jobs Revolution," I was particularly drawn to a passage about knowledge and job skills. Knowledge, it began, is being outdated at rates that are still escalating. Even knowledge that is current when students graduate is soon outdated. While the number of new careers is increasing, the life span of applicable knowledge is decreasing. Two-thirds of the 7-million worker gap in 2010 will be a skilled worker shortage. That's unacceptable. Today, tomorrow and for the foreseeable future, knowledge is king, especially knowledge obtained and updated on a regular basis through a lifetime of learning and a constant upgrading of skills of our workforce. College degrees do not have the shelf life they once did.

In 2004, China graduated about 500,000 engineers, India graduated 200,000. We graduated 70,000. In less than 5 years, China has more than doubled the number of their engineering students who graduated from college. Only 6 percent of the bachelor level engineering degrees granted world wide were earned in the United States.

More staggering are the results from national and international tests showing that American elementary and secondary students are falling behind and will not be prepared for the demands of global competitiveness. Only 7 percent of America's 4th and 8th graders in 2003 reached the advanced level on the International Math and Science Study. By contrast, 38 percent of Singapore's 4th graders and 44 percent of their 8th graders did, compared to our 7 percent. In addition, American 15-year-olds ranked 24th out of the 29 developed nations in mathematics, literacy and problem solving on the most recent International Assessment Test. We are losing the race.

A student who takes just one remedial reading course in college is 8 times less likely to graduate than a student who is fully prepared for college. At a time when most jobs will require some post-secondary education, we must focus on who is fully prepared for college. With less need for basic reading and math courses and a greater likelihood of success in college or the workplace, a good education will always be the golden key that will unlock the door to a brighter future for all of us as individuals, and together as a Nation.

Often when there are challenges, there are opportunities. By taking this opportunity to strengthen and focus our education and training systems on ensuring the knowledge and skills that we as individuals and the Nation need, we are ensuring that America's students are the best in the world and they speak the language of success, and that as a country we will get more than a passing grade.

I really appreciate Secretary Spellings being with us today. We look forward to your remarks regarding what the President is proposing for the U.S. Department of Education to meet these challenges. On January 5th, you jointly announced with the Secretary of State, the National Security Language Initiative to Advance National Security and Global Competitiveness.

The President proposed almost \$400 million as part of the American Competitiveness Initiative to strengthen the capacity of our

schools to improve elementary and secondary instruction in math and science. These are critical first steps.

Thank you for being here and for sharing that vision with us today. The purpose of today's hearing is to discuss the Competitiveness Initiative. I recognize that there are many important education topics existing today. However, I respectfully request that the committee stay focused on this most important topic.

Senator Kennedy.

OPENING STATEMENT OF SENATOR KENNEDY

Senator KENNEDY. Thank you very much, Senator Enzi, for having this hearing.

Welcome, Secretary Spellings. Our committee always enjoys working with you. You have been available and accessible to us on this committee on our side of the aisle. We have not always agreed, but we have always had a high regard, and deep respect for your strong commitment to education, and we want to try and continue to make progress.

I want to thank the chair for having this hearing. I want to acknowledge the leadership of our colleague and friend, Senator Bingaman, and Republicans as well, in giving life to this whole challenge that we are facing here at home in terms of being able to compete in the international and the global market, and understanding the importance of education. The excellent report released by the National Academy of Sciences included a series of excellent recommendations. Hopefully, we will have an opportunity to consider those recommendations and the Administration's recommendations.

I welcome the chairman's statement, and he really captured it very, very well. I would like to have my full statement printed in the record. This issue requires a comprehensive plan—one that begins with early education, K through 12, continuing education, and training. We also have to look at our graduate schools.

Senator Enzi outlined the progress that is being made in the other countries, in China and Japan, and the fact that we have seen about 70,000 graduate students in engineering. About half of those are foreign students.

My sense is as a Nation we have to make a commitment that we are going to equip every individual in our society to be able to deal with the global challenge. That ought to be our national challenge. Then we have to be able to equip our industries, so that they are going to be the innovative industries for the next century so that they can compete internationally. I think it is as simple as that. We cannot just have some winners and some losers and think that we are meeting our total responsibility. Our principal concern—and we will get into it in the questions—is whether in some of these areas which I think are commendable, whether we have closed down some programs which have been very, very useful and valuable, in the name of introducing others.

For example, we have seen the math and science teacher training program in the National Science Foundation cut back significantly. In a program that I thought had great merit, the math and science partnership program under the No Child Left Behind has been virtually flat funded now for the past 2 years, and even the No Child

Left Behind teacher quality program has been diminished in terms of flat funding, which has meant a reduction in real terms.

We want to make sure, when we are moving off on new initiatives, that we are also meeting our responsibility on initiatives that have been tried and tested in the past, that are working, and which our communities are really relying on in terms of advancing math and science as well.

We look forward to a number of very valuable ideas put in the President's State of the Union, and which are expanded on in your testimony. There are a lot of very good ideas from both sides of the aisle here. We hope to have a real working partnership with you to try to get it done in the best interest of the children and of this country. Also recognizing that continuing education and training is going to be a key to our future competitiveness as well.

Thank you.

The CHAIRMAN. Thank you very much, and with unanimous consent, your full statement will appear in the record, as will any statements by members of the committee that wish to put it in there.

[The prepared statement of Senator Kennedy follows:]

PREPARED STATEMENT OF SENATOR KENNEDY

Thank you, Senator Enzi, for scheduling today's hearing on the role of education in keeping our Nation globally competitive. It's a privilege to join in welcoming Secretary Spellings back to our committee to discuss this important topic.

Globalization is one of the most important and far-reaching challenges facing our country and our economy today, and it's already leading to massive transformations of our industries and our workforce.

There is no quick fix to this challenge. But we have a choice. We can continue to allow the swift currents of globalization to sweep us away. Or we define America's own destiny with policies that create new opportunities for our people.

I believe that America can rise to the challenge. We can do it not by lowering our wages, but by raising our skills and equipping every American to compete and win in the new global economy. And we can do it by creating in America a new culture of innovation and creativity that keeps our Nation in the lead in the global market place. Only then will our economy continue to grow and prosper, and only then will the good jobs of the future be made in the U.S.A.

That must be our goal. Surely education is one of the major keys for doing so. More than ever, we must begin at the beginning—by ensuring that each and every young person receives a high quality early childhood education, from the very earliest years. We've long focused on K-12 and college and post-graduate education, but we need to give comparable attention to the earlier years as well, because they have such a profound impact on each child's later performance in school and in life.

That means standing behind our commitment to leave no child behind, so that public education works for every single child. Five years ago, we acknowledged that reforms and resources were the right formula for improving our public schools. High standards,

well-qualified teachers, smaller classes, and extra help for students who fall behind are undoubtedly the right reforms. But we also need the resources to get the job done, and to guarantee the financial support they need for college or for workforce training programs.

I welcome President Bush's call to focus on math and science. We need to strengthen the teaching of math and science at every level—from public schools on through colleges and universities—not only to produce more scientists and engineers, but to guarantee that America continues at the cutting edge of innovation and progress.

In order to accomplish this, Congress and the Administration must help the States to align their curriculums in these critical subjects with the needs of the economy and the workforce. With adequate incentives, we can recruit and retain excellent math and science teachers in high-poverty schools. We can encourage investments to adapt state-of-the-art technology for classroom use. We can enable more of our best students to pursue college degrees in math, science, technology, and engineering.

Each of these investments is an investment in America's future. Anything less will shortchange the Nation and its future.

Perhaps the best greatest obstacle is the current fiscal climate. Frankly, we simply cannot win in the global economy and create the good new jobs of tomorrow on the budget that the President presented this week. The budget cuts that the President proposes compromise the quality and availability of education that is so key to our progress.

The fiscal year 2007 budget announced on Monday underfunds the No Child Left Behind Act by \$15 billion. It would leave behind nearly 4 million students who need essential services under the Federal title I program of aid to disadvantaged students. It would leave behind 2 million children who could benefit from after-school programs. Twenty-nine States would have reduced title I funding.

It eliminates 42 education programs currently funded at a level totaling \$3.5 billion, even though many of those programs on this blunderbuss chopping block are important investments in America's future.

It seems particularly shortsighted for the President to further reduce funding by 27 percent for the Math and Science Partnerships program at the National Science Foundation at a time when we need the best possible training for math and science teachers. Also, the budget should not have proposed again to eliminate our current investments in technology education under the No Child Left Behind Act.

It's impossible to justify such reductions. We need to do more—not less—to advance these priorities in education. I hope that we can work together this year with this Administration to re-think the budget and provide the funding needed to these critical programs.

Secretary Spellings, thank you for being here today. We look forward to hearing from you about the President's plan for Global Competitiveness. All of us on the committee want to work with you to see that the Nation's students, schools, and colleges can adapt to this new age of global competitiveness and rise to new heights.

The CHAIRMAN. Without further ado though, we will go directly to the statement by the Secretary of Education.

**STATEMENT OF HON. MARGARET SPELLINGS, SECRETARY,
U.S. DEPARTMENT OF EDUCATION**

Secretary SPELLINGS. Thank you, Mr. Chairman. Thank you, Senator Kennedy, and thank you, members, for inviting me here before you today.

I am glad to hear that everything was okay last night after the false alarm, and Senator Enzi, I understand you had the opportunity to spend some real high-quality time with your 2-1/2-year-old grandson down there for a few hours in the garage.

Senator GREGG. We all did.

[Laughter.]

Secretary SPELLINGS. And you too, Senator Gregg.

You and I, Senator Enzi, have been working closely in our freshman year on the job here, and I want to thank you and this entire committee for your support and for all you have done together this year, including providing relief to the victims of Hurricanes Katrina and Rita, and I want to especially thank you for your recent work to increase the resources available to help low-income students afford college.

The academic competitiveness and SMART Grant Programs build on the successful Pell Grant Program, and they will encourage students to take more challenging courses and pursue subjects that are critical in the global economy, science, technology, engineering and math. So thank you for that effort last year that the President just signed yesterday and I think it really sets the table for the work that is before us.

I am sure most of you have probably seen the cover of Time Magazine, which asks: Is America Flunking Science? Or the Business Week Magazine from a few weeks ago, that says: "Math Will Rock Your World." And we cannot, any of us, pick up a newspaper or magazine these days without reading about global competitiveness, especially in math and science. As you all well know, our children are not growing up in the same world we did, and in the last century this country led a communications revolution that connected people around the world like never before. And as a result, today, what you know means far more than where you live.

Last week President Bush laid out a bold vision for keeping American competitive, and of course, we all agree it begins with education. His initiative will double the Federal investment in science over the next decade to make sure that we continue to lead the world in Nobel prize winners, and it will encourage the private sector to make bold investments in research and innovation to produce the next big breakthroughs. But to do all of this, we must give our students the skills to compete and lead in the global economy.

As President Bush said in the State of the Union, "We must continue to lead the world in human talent and creativity." And the good news is, is that there are certain things that we cannot teach in classrooms that our country already has: creativity and entrepreneurial spirit, which means to me that we actually have the

easier job. What we need to do is give our children the skills to compete.

Unfortunately, we are not where we need to be, as you all have recognized. Wherever I go, I hear from Governors, business people, educators and parents, that our students are not adequately prepared, and there is a wide and growing consensus externally as well as in this chamber and around our country that we must address this issue.

I have heard from you all and I have seen the legislation that you have introduced, the National Academies, the Business Roundtable, the National Governors' Association, are all giving us the same message: we must make our high schools more rigorous and encourage students to take more advanced math and science classes.

Employers today need workers with pocket-protector skills, creative problem solvers with strong math and science background. Whether children want to be auto mechanics or cancer researchers, they must have these skills.

Last week I held parent roundtables in Orlando and Birmingham. The parents all said we need to help students see why math and science are relevant to their lives. I met one teacher in Birmingham who had that problem solved. Her students were comparing hair strands under a microscope as part of a mock crime investigation. It was CSI Birmingham, and I did not see many students looking at the clock or asking why they had to learn math and science. Math is becoming essential in fields ranging from advertising to consulting, to media, to policymaking. In my job I like to say, in God we trust, all others bring data.

This fast-changing economic landscape means that our education system must keep pace, and on that front we have a lot of work to do. Just one State, Alabama, requires students to take 4 years of math and science to complete high school, and as much as I hate to admit it, that gives Senator Sessions bragging rights over each and every one of us.

Meanwhile, 90 percent of the fastest-growing jobs require post-secondary education, and fewer than half of our students graduate from high school fully ready for college-level math and science. Our 15-year-olds, as you said, Senator Enzi, rank 24th out of 29 developed nations in math literacy and problem solving, and half of our 17-year-olds do not have the math skills to work as a production associate at a modern auto plant. That is simply unacceptable, and we cannot wait until students are 17 to address these problems. The competition starts in elementary school.

The President's Initiative will devote \$380 million to strengthen K-12 math and science. Overall, the Department of Education will increase funding for our programs in these critical fields by 51 percent. We must improve the way we teach math in our elementary schools. It is not just about helping younger students develop strong arithmetic skills, it is about planing the seeds of higher order thinking. We need to do for math what we have done for reading, by building a scientific research base of classroom practices that are proven to work. The President has asked me to form a new National Math Panel that will bring together top experts in the field to do this work, and the President's Math Now Program

for elementary school and middle school students will help bring this research to the classroom where it can help teachers and students.

This is urgent work, and we only have time to do what works, and I know some of you have expressed concern about resources, but the reality is, the resources are there, but we must invest them wisely.

Currently, 13 different Government agencies spend about \$2.8 billion on 207 different programs for math and science education. These programs are all in their own little silos and there is almost no coordination between them. It is a thousand flowers blooming and maybe a few weeks. We should align these efforts with the principles of No Child Left Behind by continuing to hold schools accountable for getting all students to grade level in reading and math by 2014, and by giving local policymakers and educators the power and the research base to do what is best for their students.

Four years ago, this committee helped drive the passage of No Child Left Behind, and thanks to your hard work, today we have policy levers and relationships with States that are working. No Child Left Behind is making a real difference, especially in the early grades. As you know, for example, in reading for 9-year-olds, their progress has increased more over the last 5 years than in the previous 28. Now we must build on the law's foundations to prepare students for more rigorous math and science course work in high school.

A key component of that is expanding the Advanced Placement Initiative program, which tells us that just taking one or two AP courses increases a student's chance of graduating from college in 4 years. The College Board tells us that based on PSAT scores, there are nearly half a million students who are ready for AP Calculus last year, but did not take it, or have access to it. Unfortunately, many students, especially in lower-income communities, still do not have the opportunity to take these classes. More than a third of high schools across the country offer no AP.

There is something wrong when right here in the Nation's capital, suburban Langley High School in Fairfax County offers 21 AP courses—which is great, fantastic, and we commend them—while inner city Ballou High School here in the District offers but four. With the way we ration these course, you would think we do not want students to take them, and that needs to change, especially when we know that our students are going to need these skills to succeed not only in higher education, but in the world of work. Think about the disconnect and the implications for our country, when 90 percent of the fastest-growing jobs require postsecondary education while about 50 percent of our minority high school students are graduating from high school on time.

Of course, schools cannot offer advanced classes without qualified teachers to teach them. If you went to a hospital, you would not ask an eye surgeon to set a broken bone. But right now, many teachers, especially in lower-income schools, are being asked to teach courses outside their fields of expertise. That is not fair to them, and it is not fair to their students.

That is why President Bush has called for preparing an additional 70,000 teachers to lead Advanced Placement in International

Baccalaureate classes in math and science. We also want to recruit 30,000 math and science professionals to become adjunct high school teachers. Imagine a NASA scientist teaching high school physics. As a mom with a 13-year-old child struggling in 8th grade algebra, I have heard all of the excuses for why things cannot be done, parents who say math is too stressful for children, teachers who say students are not ready for advanced course work, and 13-year-olds who are happy to agree and look for the easiest course of study. We must raise the bar.

A few weeks ago, Senator Isakson and I visited a math class in Atlanta. From the lesson plan, I thought it must have been a 5th or 6th grade class, but it was 3rd graders doing higher level critical thinking. And earlier this week there was an article in the Washington Post about how more and more students in the D.C. suburbs are taking multivariable calculus in high school because they are learning algebra at a younger age.

If we raise our expectations, our students will rise to the challenge. As the President said in the State of the Union, if we ensure that America's children succeed in life, they will ensure that America succeeds in the world. As leaders and policymakers, it is our job to look down the road and make sure our kids are prepared to succeed in the future. We have always been the most innovative society in the world, and together we will make sure that we always are.

Thank you for your attention. I will be glad to answer any questions you might have.

The CHAIRMAN. Thank you very much for your testimony, a lot of good information there, some phrases that we will need to use in the future as well.

Yesterday at the White House we got to watch the President sign the Deficit Reduction Bill, which had a new program for college to emphasize science and math with some new grants, and I have to say from your testimony, that Alabama is going to be best prepared to take advantage of that, because if they do not take math in high school, they will not be able to specialize in it in college, and maybe that will encourage more of the States to follow that same path.

I was caught by your comment that there are 13 Government agencies that handle 207 education programs. With the various agencies involved in the President's Competitiveness Initiative, what steps are you taking to coordinate all the pieces so they will align with the goal of No Child Left Behind and proficiency in reading and math by 2014?

Secretary SPELLINGS. Well, Senator, you all took a great step in the reconciliation that creates a council that would do just that. It calls on me to chair a working group, a task force, a commission, that would include representatives from the National Science Foundation, the Department of Commerce, all the various agencies who are involved in these endeavors, and link up and coordinate and inventory what it is exactly that we do with those programs and what the effects are. As I said, we have literally thousands of grants. Some of them are highly effective, I am sure, but we do not have agreement on results or outcomes or measures within those programs, and I think if they were fully effective, we probably

would not be here having this hearing about the dearth of math and science capability in our schools.

The CHAIRMAN. We will look forward with you on that coordination. You also mentioned the AP classes. Now, in order for high school students to succeed in Advanced Placement in International Baccalaureate math and science courses, they need to enter high school prepared for and interested in pursuing those subjects. That means that their elementary and middle school teachers will play a crucial role. How do we make sure that all the elementary students are exposed to a variety of science experiences, and what steps can be taken to guarantee that elementary students especially have teachers who are skilled in these crucial areas of math and science? You touched on that a little bit in your statement. Could you expand a little bit on that?

Secretary SPELLINGS. I think one of the things begins with looking at a research base and what the issues are with respect to curricula and standards in elementary schools. We find, and what I hear from mathematicians and experts in this area, is that while we are doing a lot of arithmetic, a lot of computation, adding, subtracting, multiplying and dividing, we are not adequately seeding higher order thinking. When I say that, I mean multistep processes, the ability to add together an equation, and then subtract it from something else, and come up with an answer. Those are the sorts of things that students need practice and facility on if they are going to make it in algebra in 7th, 8th or 9th grade. So just as one example, I think there is curriculum work to do.

Likewise, I think we are called upon to establish and look at what are the most effective practices, what are the most effective teacher training initiatives and elementary school investments that seem to be having the greatest effects? Because they are out there around the country. We are just not doing them widely enough, and that does get back to this coordination of resources and alignment of programs.

The CHAIRMAN. Thank you. Another thing that you mentioned in your speech was the need for pocket-protector skills. As an accountant, I remember once saying to my kids that I was looking forward to the time when pocket protectors would come back into fashion.

Secretary SPELLINGS. Well, it is here.

The CHAIRMAN. And they assured me that they never had been in fashion.

[Laughter.]

But I will keep hoping.

I do know that improving literacy among the adolescent population is critical if we expect students to succeed, to graduate on time, to enter postsecondary institutions without the need for remediation. How can the Department of Education work to improve reading skills for all students beyond the first four grades? How do you envision involving high school principals and the teachers in high school in all the subjects of this task?

Secretary SPELLINGS. I think it is a variety of ways. One, we know that we must find ways to extend the very valuable research base that was developed at NIH, the National Institutes of Child Health and Development, that tells us how young children acquire reading skills, and that is becoming a way of life in our elementary

schools. We need to figure out how to extend those same strategies and principles into our middle schools, because, absolutely, when students do not have facility in reading, they are going to have a hard time mastering a 9th grade textbook. We think we can do that. There is some very encouraging work going around the country. In Kansas, Don Deschler is working on how to take these principles with older learners.

We must make sure that our middle school teachers have some capacity and understanding of how to teach reading, if you will. We have expected—and rightly so, obviously—our elementary school teachers to be primarily reading teachers, but we also expect our middle and high school teachers to be content area experts and not reading teachers, and we are going to have to embed some of those skills likewise in the higher grade levels until students get caught up.

The CHAIRMAN. Thank you. That has been very helpful.
Senator Kennedy.

Senator KENNEDY. Thank you very much, Mr. Chairman.

Part of the concern that I have is whether this program is going to be of general benefit to all children and provide opportunity for all children in terms of the math and science AP program, to move a whole generation of children forward, which I think is the central challenge. And President Bush's proposal is sort of against a background where the Administration is cutting back on a number of programs. For example, the TRIO programs. We find out that students in Upward Bound are four times more likely to earn an undergraduate degree than students in similar backgrounds who were not in TRIO. The students in TRIO support service programs are more than twice likely to remain in college than those of similar background who do not participate in the program.

We have some in my own State, 52 projects, 21,000 students that are in those programs. It has had a remarkable success in opening up opportunities for children that come from disadvantaged backgrounds. The Administration is attempting to eliminate those, which is troublesome.

I am concerned about the students that are in community colleges. Forty-five percent of all college students are in community colleges, and better than half of those are working. They have to work. We have seen the explosion of loans that are going to students. These kids all have to work, and they are going to have difficulty in participating in these programs because they come, generally speaking, from schools that do not have a rigorous curriculum. We are going to try to work on that. But their chances of moving along in terms of accessing AP courses, and later college. Their opportunities are going to be extremely limited. As I understand it, only about 10 percent of the total Pell grant recipients are going to be eligible for grants under the Administration's new standards.

So that is the first time that we have ever had the Pell grant program where rather than raising all of the children who qualify academically and are able to get into the schools, we are discriminating on the high school they attended. By weighting it towards a small group, it is only going to reach about 10 percent of poor students—at least that is my information.

I think what I am saying is how are we going to try and recognize we have to deal with this as a country, as society, a total education system. It looks like we may very well be in a shell game here of robbing Peter to pay Paul in terms of some of these programs, where we ought to be trying to lift opportunities for the entire generation of students that are going on into the school, and getting them into math and science. I agree with you that the earlier the intervention in terms of math and science, the better. But, whether this program is skewed toward the later, rather than the earlier, is something that we are concerned with.

In my own State of Massachusetts we have 72,000 jobs waiting there, and 170,000 people unemployed. So job training and skills is a major challenge. You have important reductions in the WIA program and other work training programs, continuing education programs. I am just trying to see where these all sort of connect. We can find some programs that have a lot of appeal, but how they sort of connect to make sure that we as a society, and as a country, and as this next generation, have to sort of move along together. I know it is a general statement. But maybe you could help us by how you view it, how the President views it, make sure that we are not going to find greater kinds of disparities now, greater advantages for some kids. Obviously, some will have ability, but we do not guarantee an equal society. We try and offer at least opportunity for these kids to move along.

Secretary SPELLINGS. Absolutely, and I completely share your concern, Senator. I think one of the things that will get us off to at least some information that may help us all do this work is to figure out, what are we doing? How much is then allocated to high schools versus elementary schools, versus community colleges in our \$2.8 billion investment, and frankly, we do not really know that at the moment.

You have said a mouthful on resources, and I think we need more information, and we have some challenges about how to allocate our priorities. Should we be paying more attention at the high end or at the low end or at the middle, or all of those sorts of things that are at issue.

Let me speak to the TRIO, GEAR UP, vocational education matter. What has been presented in the President's budget is essentially a gathering up of those resources and some additional resources to create a high school initiative, which says to States, "Here is a larger block grant, if you will, a \$1.5 billion high school initiative, and please go out and do effective programs." So rather than have various isolated silos that are competitive grants that some States get, some States do not get, they are allocated within States, that we are trying to be more comprehensive and more discretionary with States and localities about what the specific programs and needs are in your area. We have said, all of us together, that we expect proficiency by 2014, and I think one of the things that certainly was at issue in No Child Left Behind and is the President's budgetary philosophy is that we be very clear about the result, but have some discretion about how States allocate those programs.

I am confident when TRIO, GEAR UP, vocational education programs like that work effectively, they will be embraced by States, and they will continue.

With respect to the community college issue that you raise, this, obviously, is over in the Department of Labor, but he has asked for \$150 million to enhance dual enrollment programs so we can make sure that the articulation between high school and community college is strong, and that those students, as I said, if you are going to be an auto mechanic or a cancer researcher, the currency is the same, more technical capability. Whether we find that in advanced placement or we find that in dual enrollment programs in community colleges, the job is the same, the skills are the same irrespective of what your pathway might be.

Senator KENNEDY. My time is up, but I appreciate your explanation. These are the things we will certainly want to work with you on.

Thank you, Chairman.

The CHAIRMAN. We are very fortunate on this committee to also have the Budget Chairman, as the most senior member. Senator Gregg.

Senator GREGG. Thank you, Mr. Chairman. It is a pleasure to be here. I usually ask a lot of questions, but I want to get into this philosophy for a moment and talk about it for a second, because Senator Kennedy has touched on what I think is the core issue that we as the Federal Government must address, and that is where we put our resources.

Secretary SPELLINGS. I agree.

Senator GREGG. No Child Left Behind, the theory of it was that we would set up a standard where we asked States to set their own standards in local communities as to how much a child should learn in the areas of reading and math. We did not go into subjective subjects, or social or political courses, or Government courses, but rather we just stayed with core courses, math and reading, because we felt you could evaluate them, and you could set bars. The Federal Government I think has now agreed, and there is a consensus that we should play a major role in the area of math-science education.

The question becomes, how do we do that? Do we attempt to raise the entire world of math-science education, or do we attempt to address those who we think can succeed and give them the opportunity to participate in the success?

Senator Kennedy is representing—and it is a legitimate position—that we should try to raise all the boats at the same time. There is an argument, however, that AP course, by definition, expect students who excel in those fields to participate in them, and that everybody is not going to take an AP courses, just like everybody is not going to be a star athlete, everybody is not going to be an artist, and everybody is not going to be a writer.

But if we as a Government are going to choose to try to pursue a course of competing in the world, and we have decided that the best thing that we can do is promote math-science as a Government in order to accomplish that, then I think we have to choose an approach to that that finds the people who are going to succeed in that area, and gives them the opportunity to succeed. What is

the Federal role in that? Does it enter at the elementary school level, at the junior high school level, at the high school level, or at the college level?

Traditionally the Federal role has entered at the college level where we have subsidized dramatically research. Now, the Administration is suggesting, no, let us step back and take it to lower levels of education or to our entry levels of education. How do we do that?

You threw out a number which I find to be the most startling, and unfortunately, the most difficult number we deal with, which is that at Langley High School there are 41 AP courses, while in an inner city Washington high school there are two or three. At Langley High School I suspect you will find a 98 percent graduation rate. At the inner city school, 50 percent of the kids are not even finishing in 5 years, and if you looked at the young male population at those schools, it is probably 80 percent. It is a huge cultural problem. How do we get a program that supports a child in that atmosphere, where basically education has been disregarded, regrettably, by their peers, to participate and to see it as an avenue of opportunity? Because there are a lot of kids at that school who start out who have the ability to participate. There are going to be a lot that maybe do not, as there are also at any other school.

But how do we structure this program so that to the extent the Federal Government plays a role here—and obviously, the majority of this has to be played at the local level and the State level and the community level—we can answer the question of the child who comes into that school with a huge disadvantage and that the peer pressure is basically the opposite of being a participant in academic success, actually is able to participate in academic success. And we have tried this for years, and we have not made any success at all in this exercise.

I participated at a Governor's conference which the first President Bush called at Charlottesville, and this was the issue we discussed. We were going to improve our math-science scores for students by the year 2000 and be, instead of 13 out of 15 industrialized nations, our target was to be like 5th or 6th, and we are still probably 13th.

I do not see us addressing this issue with just dollars, and I am not sure how we address it, but I would be interested if you thought about it at all in these terms.

Secretary SPELLINGS. I absolutely have. I thank you, Senator Gregg, and Senator Kennedy, you have exactly hit on the right issue, which is, are we talking about opportunity for everybody or the high-end innovators, the Bill Gates's of the world, or both? I think the answer is both. I would respectfully disagree and I would respectfully give you credit that we are seeing changes. Because of No Child Left Behind, because of focusing on each and every subgroup, because of our focus on math, we see places like Senator Isakson and I visited in Georgia, a very high poverty school, where those kids are knocking the top off the Georgia math standards, and doing very high-level work. We can do this.

Part of the problem—and I hate to be a broken record—starts with we have not really looked at what is the effective strategy? How do we do it? It is what I call the “tell us what to do and we

will do it" phenomenon, and obviously, that is overstated, but we have done a poor job, despite our \$3 billion annual investment, of really informing the education community, you know, what works, what are the strategies, what are the kinds of conditions that have to be in place for students to be effective like in the place that Senator Isakson and I visited.

I think we can do it. I think it is also important to note, and obviously, I am here to talk about, but one aspect of the American Competitiveness Initiative, that there is a \$900 million call for additional resources in investment in research and development. That is largely going to be in our higher education community. It is going to be partnerships of "brainiacs" who do these sorts of things, and as well, the extension of the Research and Development Tax Credit. Most of our innovation is coming from the private sector. So that is the incubator, if you will, for that kind of talent. But I think it is our job, as a major part of this American Competitiveness Initiative to make sure that we have, and we expect, and we can do, and believe we can do, more rigor for more kids.

I agree completely, it starts in elementary school with seeding interest, and creating a culture of interest, engagement and setting the table for the capabilities that will allow this successful demand for more rigor.

Senator GREGG. Thank you.

The CHAIRMAN. Senator Bingaman.

Senator BINGAMAN. Thank you very much, Mr. Chairman.

Secretary, thank you for coming. Let me state what I think is obvious to everybody here, and that is that I am disappointed that the Department of Education budget is slated for nearly a 4 percent cut this next year. I think that is too bad. I think it reflects misguided priorities within the Federal budget.

However, even with the smaller budget, there are some things the President has endorsed, the Administration has endorsed that I strongly support. The proposal to provide additional funds for AP instruction is a very good proposal, one I have urged on the President, and I know you are a strong supporter of that. It is part of what the National Academy of Science has recommended. They recommended two things though with regard to advanced placement instruction. They recommend that funding for advanced placement, training of advanced placement teachers, but also funding of pre-advanced placement teachers. And I think you found in Texas that you cannot do an effective job of providing advanced placement opportunities unless you prepare those students ahead of time, and that means upgrading the skills of the teachers in those middle school and earlier grades.

Why is that not something that the Federal Government ought to be trying to put some resources into also?

Secretary SPELLINGS. The initiative the President has called for could include pre-AP, and we do not mean to limit it just to high schools, per se, but to pre-AP or AP classes.

One of the things that I think is very important—and Senator, I know you have seen this with your own two eyes at Townview and some of the things that are going on in Dallas that the President visited about a week ago—is when teachers are taught to teach AP calculus or AP anything, they also have a course load of

nonAP subjects. So the teaching is upgraded throughout their course load, and so I do think that we do not mean to limit this just to high school only, that these resources ought to be available as well for pre-AP.

Senator BINGAMAN. One other area that this National Academy report emphasized was the need to put funding into training of current and future teachers to be better qualified to teach math and science. As I understand your Math Now Initiative, you are proposing 260 million for curricula development, essentially, but nothing that would go to upgrading the skills of current and future teachers in math and science. Am I missing something in there?

Secretary SPELLINGS. Yes, sir. The \$260 million could be used either for ingraining or embedding this higher-order thinking, as I keep calling it, in elementary schools, and as well, making sure that those teachers that are teaching elementary school are prepared to do it. So we do not need to limit to exclude teacher training as part of that initiative.

Senator BINGAMAN. So that \$260 million would be available for teacher training?

Secretary SPELLINGS. Yes, sir.

Senator BINGAMAN. Because the National Science Foundation, as I understand it, has already published information, and identified information about what they believe are effective math and science curricula. At least in my State I do not hear instructors or teachers or school administrators coming back and saying, "We do not know what the right curricula is." They have a good idea what it is, they just do not have enough people that know how to teach it. The teachers do not have the content training that they need.

Secretary SPELLINGS. I think that is certainly part of the problem, and we also know that the results—I mean if that were true, I assume we would see better results for more kids at the elementary grades. I think there are—we do have a research based lack of information about how we teach struggling kids to facility in mathematics. We are not doing that very well now, and I think there are questions about how to do that.

Senator BINGAMAN. One issue that I have focused on repeatedly, and with very little success, unfortunately, here in the Senate, is this problem of more and more of our kids leaving school before they graduate, dropping out of school. Senator Gregg talked about that. It seems to me that there are bound to be some strategies that work in trying to retain people in school, and try to keep them engaged, and educate them. Particularly this is a problem throughout the Southwest with the Hispanic community, which is a very large community in my State and in Texas as well, but it is true for all groups in society. We have a very serious dropout problem. We have authorized, as part of No Child Left Behind, funding to try to assist schools that want to adopt policies that reduce the dropout rate.

The Administration, every year, requests zero funding for that, and that has been the case since No Child Left Behind was enacted. Is there any way we could get some support from the Administration in coming to grips with that dropout problem?

Secretary SPELLINGS. Certainly, Senator. I think it is all in the matter of how you do it, and I think there are three things that

I would say about that. One is we do not really fully understand why that is, why do students drop out? We think sometimes it is a lack of reading skills. We think it is boredom, disengagement, lack of relevance. But until we have some accountability and measurement in high school, it is going to be hard for us to fully know that I think.

One of the things—and Senator Murray is very keen on this as well—is this sort of individualization, this notion that we need to—in fact, I was very heartened to see Governor Perdue in Georgia talk about a counselor, a State initiative that says how are we going to get each and every kid out of high school? What are the conditions? What are the interventions and so forth? So that sort of notion. And as well, I think we need to promote reading instruction in middle and high school that can make sure that kids can do more rigorous work.

Senator BINGAMAN. My time is up, Mr. Chairman.

The CHAIRMAN. After a couple of full committee hearings to kind of set the stage, we will be turning a lot of the work over to Senator Alexander and his subcommittee to pursue the global competitiveness, and we thank you for all the effort that you put into setting the stage for that and working with the National Academy of Sciences.

Senator Alexander.

Senator ALEXANDER. Thank you, Mr. Chairman.

I would first like to congratulate Secretary Spellings and the President for the President's American Competitiveness agenda. The most important thing a President can do is set the agenda. He is the Nation's agenda setter. And the second most important thing he can do is fund it to make sure it works, and we are off to a good start in that.

I also want to call attention to the work that Senator Enzi, especially, with Senator Frist, Senator Gregg, Senator Kennedy, was involved in December in the SMART Grants. That is a big program. It affects 500,000 students. It is \$3.7 billion over 5 years, which is more money than we are talking about in all these new programs here. So that is a part of what we are talking about. It is already done, and deserves a lot of attention.

Following up on what the chairman said, we are going to begin hearings later this month, I hope, in our subcommittee, on K–12 recommendations of the National Academy of Sciences and other related ideas, so that we can make our recommendations to the full committee. We will be looking at the suggestions that are in the President's proposal as well for K–12 on math and science. We will have to look at the situation of all of these programs, 13 agencies, 207 programs. What occurs to me then is assessment is needed. It does not always equal the need for consolidation. Sometimes letting a lot of flowers bloom is the best way in a complicated country to let good things continue to work. But we will begin the process of continuing to look at all of that.

I wanted to specifically ask you if when we get to those hearings, which will be at the end of this month, early next month, if your Department would be prepared to give us your opinion about the proposals for K–12 that were in the proposal of the National Academies of Sciences and Engineering? You have specifically rec-

ommended one, the President has, which is the advanced placement courses in math and science, which Senator Bingaman, Senator Hutchison and others have worked on for a long time. There are five others that are not in your proposals, and I know that the Academies went through their process of weighing lots of different models, lots of different programs, and they came up with six recommendations in K-12.

They include a model, which is the UTEACH program, which you are familiar with at the University of Texas at Austin, which would, over 10 years, identify 100,000 teachers who are already taking the sciences in college, give them up to \$20,000 a year scholarships, and then give them \$10,000 a year if they will stay teaching for 5 years, getting at that differential pay problem which is such an obstacle to everything we try to do. That is not in yours.

You do not talk about residential high schools, of which North Carolina has had for 20 years. It is a very appealing idea. It does not reach many students, but it is a great symbol of importance, and that was one of the Academies' recommendations.

It does not get into the idea of summer internships that the Academies recommended, both for teachers and students, using our 17 national labs. We found in Tennessee that we could not afford that residential summer high school, but we had great success with what we called Governor Schools for Teachers and Governor Schools for Students. This recommends such schools to upgrade teaching and identify talented students in the hundreds of thousands.

You may want to say something about those now, especially about the UTEACH program, which I thought was a tremendous model for the country.

Secretary SPELLINGS. Absolutely, and we will certainly get you more information about this going forward, but let me address the three things you mentioned.

With respect to UTEACH, clearly, we are strong supporters of that notion, no doubt about it. The Teacher Incentive Fund that you all are looking at as part of your higher education reauthorization, and that I have gotten some resources for, I think can help us seed some of those sorts of things.

So I guess the reason that the President picked some of these particular strategies is that we are already seeding some of these activities in other ways, and the Teacher Incentive Fund is one of the ways that we would seed more UTEACH. Likewise, loan forgiveness and some of the other programs like that.

With respect to residential high schools, I think the President's philosophy is that those sort of how schools are organized, whether they are charters or small or residential or whatever, have typically been in the purview of Governors and States, and that we would not prescribe kind of particular sorts of settings and groupings.

With respect to the internships at labs, one of the things that I have observed—and certainly they are great programs—but first of all, the labs, obviously, are not necessarily nationally available to schools all around the country, and that frequently in summer institutes and internships and these kind of lighthouse programs, it is our very best, most proficient, the teacher who is teaching four AP classes already that attend and participate, and that is fabu-

lous for them, but I think, again, we are back to this issue of what kind of investments, for whom and to what end? And one of the things that I think is at issue with the President's initiative is to try to seed and bring to scale more broadly, more rigor and more capacity in the system generally.

Senator ALEXANDER. Thank you.

The CHAIRMAN. Senator Reed.

Senator REED. Thank you, Mr. Chairman.

Thank you, Madam Secretary, not only for your testimony today, but for your leadership and your cooperation. I appreciate it very much.

Your Department is creating both a Teacher Incentive Fund and an Adjunct Teacher Core Program, but this is in addition to the No Child Left Behind Title II Teacher Quality Block Grant. Can you describe the thinking behind these new programs and whether they could have been accommodated through the block grant?

Secretary SPELLINGS. Well, certainly they could. I think what we believe is that there are some early adapters, some pioneers, some places around the country that we might want to partner with to test some theories before we make them available more widely. We are unsure, I think, in some of these cases how this would work. Let us work the design kinks out on how we best bring experts from the field, how we best devise compensation systems that recognize subject area expertise. So let us try these things on a more pilot-limited basis with people who are most willing before we take them to scale.

Senator REED. And they would be taken to scale through the Title II Block Grant Program?

Secretary SPELLINGS. Yes, sir.

Senator REED. We have all spent a lot of time on the committee, as have you and the Department of Education, trying to improve teacher quality with induction in mentoring programs, with scholarships for teachers who teach a particular subject or go to a particular area of the country, and with loan forgiveness. We went through, I think, a very valuable exercise in No Child Left Behind Act, talking about highly qualified teacher provisions, and the States are doing that. But it seems that in the Administration's budget, they are proposing to zero out the Higher Education Act's Teacher Quality Enhancement Program, which I think would be another component of this effort to increase the quality of teaching. Can you talk about the rationale for proposing no funding for this program?

Secretary SPELLINGS. As I said, Senator—and this is true with respect to that or any number of programs—that the President's budgetary philosophy is, let us be clear about expectations and goals, and then provide ways for more latitude through title II, through title I, through a high school initiative, as opposed to very specific stipulated programs such as that.

Senator REED. Thank you. You are talking about math, which is essential, but the criticism usually includes another dimension, math and science. Can you comment a bit about the issue of science in your plans? Do you assume that is just so closely related to math, that it will be done sort of automatically?

Secretary SPELLINGS. No. And thank you for asking me that. I think we see it as math now, because those skills are so embedded in science, and then sort of science next. One of the President's proposals is—and as you know, No Child Left Behind calls for science assessments beginning in the 2007-08 school year—that those two would be part of the accountability system. I am a firm believer, as you know, in what gets measured gets done, and that we ought to place a high priority on science. So I think it is a matter of what do we do first and what do we do next? And the President believes math first, science next, and that we ought to measure and hold people accountable for proficiencies in science.

Senator REED. Very good. A final question if I may. Can you elaborate on the Advanced Placement International Baccalaureate Incentive Program, and essentially, how will it help train 70,000 teachers?

Secretary SPELLINGS. That is a 5-year goal that the President has laid out. We currently have about 35,000 teachers, by the way, who teach math, science or English, so 35,000 nationally in those key subject areas. This is, obviously, a huge and needed ramp up. We have talked about some of the course rationing and so forth.

I think what we would envision in this is a competitive grant program that would imply basically a matching sort of commitment on behalf of the private sector, State Governments, and the Federal Government, so that we could leverage a lot of support for advanced placement teachers. We would be very open minded with States about the kinds of things that they would want to design into those programs, be they pay incentives for teachers, incentives for students, paying students for the cost of taking those sometimes burdensome exams with respect to cst for poor kids. So I think we would envision kind of an array of thinking for States, and would be open minded as to how they would want to design these programs to help us reach these training goals an bringing AP to scale more broadly.

Senator REED. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Isakson.

Senator ISAKSON. Thank you, Mr. Chairman.

Secretary Spellings, thank you for coming to Atlanta. I want to try to address what Senator Kennedy and Senator Gregg talked about somewhat in the context of our meeting. It is not a secret why Gideon's Elementary School—and for everybody listening, the school we visited was in the midst of inner-city Atlanta, almost total minority, almost total title I abject poverty school, that is testing and assessing competitively and better in many cases than schools with far different socioeconomics. And it is not a secret. They have a great principal who is a great leader, who attracts good teachers because he backs them up and he insists on excellence, and that was his 25th year.

No Child Left Behind has removed some of the veil of what administrations hid under in America for so long in education. Many of our administrators hid under the average performance of students by test scores. By disaggregating, like was done with No Child Left Behind, and having the term “needs improvement,” ad-

ministrations could no longer hide under averaging. So it has raised the level of administrative support for student achievement to teachers. I think that is No. 1, and that is to the credit of No Child Left Behind.

Second, and I support the initiative of the Administration in math and science, but I will submit to you there is only one way we are going to be able to do this—we have trouble, as a Federal Government, accelerate advanced placement to our schools where we do not have it, inner city schools, rural schools, because you cannot either get the teachers to teach there, or because rural communities in distance and accommodations are not necessarily attractive. The only way we are going to do it is through broadband Internet classrooms. South Dakota was a pioneer of that.

I was in Egypt a few years ago with Save the Children, and saw an Egyptian teacher teaching English to Egyptian children with download from a satellite, broadband satellite over Egypt. Well, the same thing could be true here. With all due respect, we can train all the teachers in the world, but to get them then to move to a lot of areas that may be rural or distant—wonderful areas, places all of us that live in metropolitan areas would long for—but it is tough for them to recruit. It is tough for them to recruit in the inner city. But it is not tough if you can deliver the quality content via the Internet and have a support teacher, who may not be an AP teacher, but they could support the quality of content coming and the instruction that is coming from the teacher over the Internet. That is what we really ought to accelerate.

Then my last point—and I am supposed to be asking questions and I am making statements. I apologize for that. But also, we need—I have said this for years, and when I chaired the State Board of Education in Georgia and we dealt with teacher shortages—our colleges of education, by and large, still think Wally and the Beaver go to school, and Ozzie and Harriet are their parents. And our schools now have Jose and Maria, and a totally different type of student. We need a re-engagement with our colleges of education in what the real classroom is like today, so that as they are preparing our teachers theoretically, they also have some idea for what the environment they are going to teach in.

I proposed in Georgia that every professor of education in the country ought to have to teach at least 1 out of every 5 years in a public school. That caused more uproar than I bargained for, but the truth of the matter is, the more time and distance and space you put between the 21st century reality of the classroom and those that are instructing the teachers that are going to teach, the more you are going to have losing teachers in the first 3 years, the less you are going to have of teachers wanting to teach in advanced placement and all that.

I have sat here and wasted 4 minutes by making statements, but we need to understand what No Child Left Behind has done to remove the veil from the Administration and really motivate administrators to support teachers. That is to the greatest credit of that particular legislation. I think we need to work on broadband expansion and accessibility to our rural and inner city schools at every level we can, federally, title III would maybe be the right title in the ESEA, I am not sure. And then last, work with our colleges of

education to be supportive of our teachers in the environment we are sending them into today.

So that was a statement. I apologize, but I will end by thanking Secretary Spellings for coming to Atlanta and coming to Gideon's. That was a great day.

Secretary SPELLINGS. It was. Thank you, and I agree very much on the technology in rural environments. Also, I think that is a place where we can look at adjunct teachers. I mean maybe the extension agent, who has a strong degree in agriculture and math and science and chemistry, maybe that person ought to have some sort of role to bring that competency to schools.

Anyway, I enjoyed it very much, and it shows the world at Gideon what can be done more broadly, and must.

Senator ISAKSON. Thank you, Secretary.

Secretary SPELLINGS. Thank you.

The CHAIRMAN. Senator Murray.

Senator MURRAY. Mr. Chairman, thank you very much for having this hearing. I think this is really an important topic about global competitiveness and the role of education. I have said before that when I was growing up, my parents always used to say, "Clean your plate because there is some kid in China or India who is starving," and I think what parents should be saying to their kids now is, "Do your homework. There is someone in India or China who is doing theirs." We face that competitiveness, and I believe we have to invest in our education system. Our people will be our ability to compete in a global economy, and I think it is absolutely critical that we face this.

I was delighted to hear the President talk about this new competitiveness initiative, and I have to say it was good to hear that he recognizes the need for our country needs to focus on this.

I serve on the Budget Committee, and I was really surprised when we got the budget for education, and it was cut by over \$2 billion, because we want our kids to do well in math and science. That is absolutely critical, but it does not happen in a vacuum. If kids cannot read or if they do not get the kind of attention they need, they are not going to be able to achieve in math and science no matter how much we focus on that.

There is also the additional fact that we just cut \$12.7 billion from student loan program. If you have a student who is in 10th grade and they do not think they can ever afford college, you can focus on math all you want to, but they are going to say, "I am never going to be able to afford to go to college."

I am concerned about the overall budget for education and want to hear from you how the President proposes to make gains in math and science while all the rest of the education budget is so neglected and so seriously cut back.

Secretary SPELLINGS. Senator, I will be glad to. Thank you. I think the first thing we must do is make sure that what we are investing our resources in is working effectively and wisely and well. I have talked about the very disparate efforts that are going on all around the Government and so forth, and that we need to channel those and hitch them up and align them to the principles of No Child Left Behind and so forth. These, granted, are tough budget times, no doubt about it. I do think if we focus on those par-

ticular things as our priorities, and hold ourselves accountable, and know what works, then we can be effective even in these tight budget times.

I do want to mention a few things about Pell, and as I said, I commend you all for the STEM grants, academic competitiveness grants beginning at \$750 and going up to \$4,000, literally nearly doubling Pell as a way to start to seed the kind of talent that we want and need so desperately.

I will say that the savings—and, Senator Enzi, thank you for your leadership on this—really was in the lender community and not at the expense of students. There will be 59,000 more students who will be accessing and eligible for Pell this year, and the fact that we are strategically investing our resources and saying as a Nation it is more of a priority for us to have math and science—

Senator MURRAY. I hope that what you are predicting is true, but I am hearing a lot on the other side, and I am certainly hearing from 10th graders out there that they are giving up on the thought of going to college, which is not what we want to hear.

Let me follow up. Senator Reed asked you a question about teachers and their role in all this. I think you can put money into schools, but if you do not have teachers who can teach, that is a serious concern. I share his concern. Under No Child Left Behind, teachers have to be highly qualified. We have set that standard. I think that is absolutely critical. But yet we see a number of the programs that have been in place that are working—from Improving Teacher Quality State Grants, to the Teacher Incentive Fund, Troops to Teachers, Transition to Teaching, Advance Credentialing—all cut back or zeroed out. So I share his concern that unless we as a Nation focus attention on making sure we have a good teaching role, you can put kids in a classroom and tell them math is important, but if there is not somebody that can impart that information, it does no good.

So let me ask you about the Adjunct Teacher Core Program that is being proposed, which I think is great. Getting more people into teaching with those kinds of skills is important. But I have been a teacher, and I am concerned that just putting somebody who knows math in front of 30 kids does not a teacher make. So how is your program going to work so we make sure they understand how to teach, as well as to have the knowledge about the class they are teaching?

Secretary SPELLINGS. Thank you for that question. I think we would use models like Troops to Teachers, Teach for America, the New Teacher Project, programs that have shown us how to take qualified individuals and make them teachers. So we will build on those sorts of successes and find ways that we would bring part-time professionals into our classrooms, as well as those who want to be there full time.

Senator MURRAY. I do not understand, because I hear you saying those programs are a success, yet the budget that we are getting is cutting them back or zeroing them out. Is the Federal Government, under this Administration, stepping away from those programs, or—

Secretary SPELLINGS. I think what we believe is that those programs have taken hold in local communities and States. The States

and localities have invested in them. They have seen the productivity in them. We are focused on these results in No Child Left Behind, and those are strategies to get them there, and we are strongly supportive of Troops to Teachers and Teach for America.

Senator MURRAY. I know you are from a vocal point of view, but when the school districts all of a sudden see the rug pulled out from under them because the funding is no longer there, then they have a hard time understanding what the goal is. I think we just have a disparity between the rhetoric and the dollars to back it up, and that is a challenge that we are going to continue to be talking about, so thank you.

Secretary SPELLINGS. Thank you.

Senator MURRAY. My time has run out, but I do appreciate your focus on high schools, and I hope that we can have another conversation about that as well.

The CHAIRMAN. Senator Sessions.

Senator SESSIONS. Thank you, Mr. Chairman.

These are important issues indeed. We are making significant progress, and I appreciate the Administration's commitment to focusing more Pell grant type support for math and science for college students, which has been walled off in a way that cannot be raided according to the legislation. I have some difficulty philosophically with these almost entitlement programs, but you insisted on that, and we passed it, and I think we will actually see that happen. So the money will be walled off for college students for scholarship help for math and science in a \$3 billion program, big deal.

Thank you for your kind comments about Alabama. I am so proud of what they are doing. I am proud that Massachusetts is following up on our reading initiative. We also have a math and science and technology initiative.

I would just like to share a few thoughts with you, and we may be on something that is very important. I believe in the reading initiative and the math and science initiative that is now coming on board following some of the same principles in the State of Alabama. Our program is designed to help teachers. What we have been doing over and over again, Mr. Chairman, is we have been demanding that teachers get better results, you have got to have better reading scores, better math scores, better science scores, you must do that. But we have not really helped them figure out how it is that children learn and helped them teach better.

The President of Harvard was before this committee a number of years ago, and I asked him, "Do you have any thoughts on education?" He said, "Senator, one of the things that I think we lack is a proper understanding of how children learn. If we knew that better, we could get better results."

What they are doing on reading is having some fabulous results—I have visited at least 15 Alabama schools with the reading initiative. It is a scientific-based program. It does not cost a lot of money. Teachers go for a week of training in the summer before the year starts, and they become trained in how to teach in this program. There is a coach involved in each school that helps coach the teachers in the program, and they identify from true evaluation tools, testing on a weekly basis how children are doing, not just at

the end of the year. No Child Left Behind said we want to have evaluation. The Alabama Reading Initiative is done on a constant evaluative basis. If children are falling behind in any technique of reading, the testing will tell you what their weakness is, and you can give them added emphasis in the area in which they are weak.

You visited some of Alabama's ARI schools not long after you took office. Do you see potential in that for around the country to actually help teachers in the techniques that are scientifically proven to get better results?

Secretary SPELLINGS. Absolutely, Senator, and that is why we need, as I said in my statement, to do for math what we have done for reading. We do have a sound and solid research base. We know how to do this work, and we need to share it more broadly. Alabama is one of the Nation's leaders in embracing those concepts and tenets, and you have the results to show for it, I would say, and we need to do that, have that same philosophy with mathematics as well.

Senator SESSIONS. Well, Alabama is doing that, and let me tell you a few things that they are doing that will change the way we teach math and science in the State. They are trained for 2 weeks in the summers, two different summers, but just 2 weeks each summer. All training is grade and subject specific, tailored to what they will be teaching in that math or science class in that grade. Equipment and materials are provided to the teachers in the form of kits that arrive every 6 weeks.

My grandmother used to be a teacher, and I found she was quite a good teacher, I think, in these scrapbooks. I thought they were her personal scrapbooks, but I have come to realize those were clippings from newspaper articles and things that she utilized to teach with. That is all she had as resources to bring to class. So teachers have to find their own materials today for the most part. You are expected to go in a classroom in an elementary school. You put up your bulletin boards, you do all this from your own personal stocks, and you can buy some of it. But the point is, if teaching is done in a scientific way and the teacher can obtain materials that actually help them convey complex concepts to the students, I think that would be helpful.

Then you have specialists that come to those classes and support the teachers. Lessons are taught in small-group discussions with real life problems, as you mentioned earlier, and results so far are showing up to a 20 point gain on the percentile ratings of the Stanford Achievement Test for those schools that have become Alabama Math, Science, Technology Schools. done the math and science. I have been so excited about that. We are not going to remove every teacher that is not the greatest scientist in the world. They are going to remain in that classroom teaching as best they can. If we can help them with our technology and equipment and some basic training, do you not think that would be a good investment for us?

Secretary SPELLINGS. I absolutely do, and I think that is what we are talking about here with the President's Competitiveness Initiative.

Senator SESSIONS. We are certainly looking in those classes now, and test scores do expose classes that are failing and not making progress, and maybe these kind of ideas, as we study them around

the country—and I hope that you will study them, because if they are as good as initial results show—sometimes you hear reports that say they are better than they really are, but good objective analysis of these kind of programs can help us a lot, I believe.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Clinton.

Senator CLINTON. Thank you very much, Mr. Chairman.

Welcome, Madam Secretary. I appreciate you being here, and your commitment, along with the President's initiative on competition. I also enjoyed the article about you and your daughters that ran in the papers sometime ago.

Secretary SPELLINGS. They are still not speaking to me.

[Laughter.]

Senator CLINTON. I know. You will live through it and so will they. I can attest to that.

[Laughter.]

Yesterday, my staff told me about a blog entry in the Education Gadfly, which is run by the conservative Fordham Foundation. Checker Finn and Michael Petrilli, who are known to a lot of us who have been involved in education reform for years, wrote an entry with the heading, and I quote, "Bush's first and second-term policies don't harmonize." The piece basically argues that No Child Left Behind is actually undermining an agenda to improve math and science achievement by creating an incentive for States to have low standards. Let me just read what they said in brief.

"No Child Left Behind creates perverse incentives for States to set low standards and dumbed down tests. In a review of State math standards that the Fordham Foundation published last year, a panel of mathematicians found that only six States had standards that were clear, coherent, and relatively rigorous. Of these, just three, California, Massachusetts"—Senator Kennedy—"and New Mexico, set passing scores on their 8th grade tests anywhere near the gold standard of proficiency as determined by the NAEP. These flaws in No Child Left Behind undermine the President's big new idea, training an additional 70,000 teachers to lead AP courses in high-poverty high schools, because if nobody gets challenged in math beyond a middling notion of proficiency, how can they succeed in rigorous AP classes?"

The piece goes on to say that: As long as school accountability is pegged to low levels of achievement, these other efforts will be mainly symbolic. Incentives work, and the vast majority of schools will continue to teach precisely what is needed to pass the test that actually count.

This comes on the heel of the publication of the NAEP results, which certainly raised a lot of issues in the minds of many because NAEP, once again, showed that our proficiency levels were not sufficient, but at the same time we have all these States reporting these miraculous increases in student achievement. Because we do not have national standards and because we have left the decision-making about standards to the States, many States have slowly, but inexorably, lowered their standards, and everybody knows that. No State wants to be embarrassed and so States give in to the pressure, and the standards go down.

I would ask, will the Department be recommending changes when we reauthorize No Child Left Behind, I think next year, to help us improve math and science education, and to try to deal with this problem of States dumbing down and lowering standards?

Secretary SPELLINGS. I think that is a good question. I have not seen that particular blog, but, obviously, clearly, I disagree with it. I think in No Child Left Behind we tried to harmonize the important role of those who are the primary investors in public education and State and local governments, with shining the bright light of the National Assessment of Educational Progress, the NAEP, on those. We have, I think, two tools here, a NAEP yardstick that exposes—I mean we now know who has the highest standards, who does not. I have talked to chiefs, I have talked to Governors, those tools are working. They are challenging their policies at the local level because of those two instruments.

I think programs like Advanced Placement and International Baccalaureate that are widely regarded as high-quality, high standards, rigorous, and equivalent to college-level work will help us raise the bar, provide that additional rigor. I think that is one tool. But I do think it is important for us to harmonize and recognize the role of the Federal Government versus States.

I would also say that even so, even with the low standards, if you will, we still have major, major work to do, especially with minority kids, on passage of State tests. And the NAEP proficiency standard is a very, very, tough, high standard, and there is discrepancy between State proficiency definitions and the NAEP, no doubt about it.

Senator CLINTON. Madam Secretary, I would love to work with you, as I am sure many of us on the committee would, to try to further harmonize and to put even more incentives into the law so that States do not back pedal.

Let me, if I can, just ask you another quick question. Last year the Department considered creating a nationwide database for every postsecondary student in the country, including detailed personally identifiable information like Social Security numbers, enrollment, attainment, and financial aid information. I support efforts to promote an accurate, useful, higher education accountability system, but I expressed concern at the time in a letter to your predecessor, Secretary Paige, that the proposal would risk violations of students' privacy and increase the bureaucratic burdens imposed on higher education institutions. Last year the Department requested the authority to create a national database of students. Congress did not grant that authority, and the Department eventually dropped the proposal.

However, it has come to my attention that last week you attended a conference in Florida with the National Governors Association, where you spoke about why States should care about student data systems including longitudinal data. And we all agree with that. You have to have data. You cannot track what people are doing or accomplishing unless you have those tools. Charles Miller, the Chairman of your Commission on the Future of Higher Education, also has stressed the need for a rich database. I guess I would like an update on what the Department's efforts really are. Are you continuing to develop a national database that contains de-

tailed personally identifiable information on every postsecondary student in the country?

Secretary SPELLINGS. No, we are not, Senator. Thank you for asking that question. I have tasked this Higher Education Commission, that you spoke of, with looking at how best to use and collect information about higher education, and we are not currently—they have not made any recommendations yet. I have given them to August to do their work.

But I would also let you know, and I know you do know, that we have a giant database at the Department of Education called IPEDS, the Integrated Post Secondary Data System, and we can tell ia virtually everything you want to know about a first-time, full-time degree-seeking nontransfer student, which is fewer than half of our students these days. How are we to best use this \$80 billion investment in higher education, that we do at the Department of Education, to some good end without knowing who we are serving, to what degree and how well? I think that is our policy challenge. How we do that, I do not know yet.

Senator CLINTON. It is something that is, obviously, of great concern, because there are issues of consent, there are issues of identification by name instead of by some assigned number, there are issues of educational performance. There are transcripts and financial data. So, obviously, this is a matter of some concern to many of my constituents and the institutions that I represent. I hope that we can continue to try to figure out what is appropriate and what is not. Thank you.

Secretary SPELLINGS. I agree. Thank you.

The CHAIRMAN. I really appreciate your being here today, and I appreciate the succinct answers that you have given, a lot of good information. I know that Senator Kennedy and I both have some additional questions that we would like to ask. Several of the questions that I would ask, I will just submit to you in writing, so that I can get the answers to them because it will play a role in what we are going to be doing in future legislation, and I will have a few concluding statements here.

Senator Kennedy.

Senator KENNEDY. Thank you.

I appreciate my friend from Alabama reminding us about the things we ought to be learning about from your State, and we will look forward to learning from them. We are very proud that Massachusetts is the number one State in the country in 4th grade and 8th grade in reading, and tied for first in math. Part of it—

Senator SESSIONS. Senator Kennedy, I believe that Massachusetts has really driven the thing financially, the reading initiative even greater than Alabama has, so you deserve a lot of credit for that.

Senator KENNEDY. I appreciate it. We do not want to keep complimenting each other.

[Laughter.]

We like the rigor of your challenge on it.

It is basically, I believe, a combination of essential reforms, by the fact that prior to the time the No Child Left Behind was in effect, we had a major review on education policy there, and the State has initiated a number of different kinds of provisions that

worked in concert with the No Child Left Behind. We still have a long way to go.

I just want to ask, Madam Secretary, you are probably familiar with the Glenn Commission report. I was on the commission. John Glenn was the driving factor and force, and he had an excellent staff. Many of the recommendations that came out in the National Academy of Sciences report, comes from that commission, and a number of the aspects of the commission were actually brought in for the No Child Left Behind program, and you might just get a—you have got a lot of reading, and we never do as much as we should—but you will see the recommendations that were in here in terms of math and science.

We tried to include a number of those in the math and science partnership in the No Child Left Behind. It talked about the isolation of math teachers, science teachers, talked about partnerships, mentoring, and a number of other recommendations. We actually tried to include much of that in the math and science partnership in the No Child Left Behind, and also provisions in the teaching quality provisions. Those aspects have been virtually frozen in terms of finances. I do not want to take the time here about the funding levels, but those have actually been frozen. And the science partnership with the National Science Foundation, under the Administration, had a 27 percent cut.

We found that that science partnership had a lot of useful recommendations and suggestions. I would just be interested in how to balance those out, why you made the judgments over the time not to increase teacher quality and the math-science partnership program, and why you think these other kinds of parts are going to achieve what you want, why those are not better, because that, I think, is at least something that we had been attempting to do in the No Child Left Behind provisions, and working with the National Science Foundation, and were pretty consistent. We want to certainly support those programs that are working, and the ones that are making a difference. We do not want to be supporting them if they are not. But I am interested in how you reached the conclusions that you did in terms of the budget, in not seeing the importance of increases in terms of this. Do you want to make a comment now or let us know later?

Secretary SPELLINGS. I certainly will look at it. I think that is our shared challenge as to how we allocate resources. I would say that funds for that partnership are up from 12.5 million in 2002 to \$182 million in 2006, so it is not that it has not been a priority. It certainly has been, of this Congress and of the Administration.

Senator KENNEDY. On the math-science partnerships, is that what—I have 179 million in 2005 and 182 in 2006.

Secretary SPELLINGS. Right, that is what I have.

Senator KENNEDY. And Title II of No Child Left Behind is 1.48 billion in 2005, and 2006 it is 1.45 billion, and the math-science partnership in the NSF has gone from 79 million in 2005 down to 46 million this year in terms of requests, so that has been a dramatic kind of reduction.

I would like to just know what is your assessment of what was working well in those and what was not.

Secretary SPELLINGS. I will be glad to do that, thank you.

Senator KENNEDY. Thank you.

The CHAIRMAN. Senator Burr.

Senator BURR. Thank you, Mr. Chairman. My apologies. We have got more Secretaries on the Hill testifying on the budget today than we have rooms to house everybody.

Madam Secretary, welcome. I think it is safe to say that all categories have deficiencies in math and science. Nevertheless, I believe they are particularly low as it relates to African-Americans. Historically Black Colleges and Universities are shining examples of institutions that really defy expectations for African-Americans in math, science, and engineering. While there are only 105 historically black colleges in the country, 11 of those reside in North Carolina, five public and six private. Their output of African-Americans that graduated in math and science is extraordinarily high. Some statistics: 38 percent of all bachelor's degrees and 27 percent of all master's degrees in math for African-Americans nationwide come out of historically black colleges. Thirty-eight percent of all bachelor's degrees and 24 percent of all master's degrees, 17 percent of all Ph.D.'s in biological science's for African-Americans nationwide are awarded by historically black colleges. Forty percent of all bachelor's degrees in physical sciences for African-Americans nationwide are awarded by historically black colleges.

North Carolina A&T University, known for their engineering school, probably is the strongest in the country, and the College of Engineering has been the Nation's leader at producing African-American engineers, and also the leading producer of African-American women engineers at the bachelor level, and it is currently the third largest of African-American master's level engineers after Georgia Tech and Johns Hopkins, which I think is a remarkable accomplishment.

They make an incredible contribution to the pipeline of African-American students involved in math, science and engineering as majors and as professionals. How might we both work together to make sure that HBCUs are even more effective and more of a tool for us to reach a population that truly does not rise to the level that the rest of the population does?

Secretary SPELLINGS. Senator, I think that is a great comment, and as you know, you and I will be visiting one of those little gems next week, and that is exactly the question I intend to ask them, what can we learn of them about how to make sure that we have more of this sort of activity going on?

I was in New Orleans a couple of weeks ago at Xavier. They have the distinction of leading the country in African-American health professionals, pharmacists, and those who pursue the medical profession. They tell me there is high expectations and a focus on those priorities. They do not try to have 400 different kinds of course offerings. They focus on what they do well, and they do a lot of it. So I think that is part of it, but I intend to ask them that question when we are there next week.

Senator BURR. One last question. In 2005, IBM, recognizing the shortage of teachers in math and science specifically, started a very innovative program within IBM, challenging for 100 IBM employees to be certified for K through 12 education, and those 100 are

targeted to come out of New York and North Carolina where IBM has a big presence.

What else can we do to challenge other companies like IBM to come up with the same type of creative, innovative ways for their employees to help us with deficiencies that we have in the skills we need to teach our children?

Secretary SPELLINGS. That is exactly what the President has in mind through the Adjunct Teacher Initiative, and I understand that IBM is about to try to provide even more teachers.

Intel, the President was just in Albuquerque last week, and they are providing professionals into the schools. So I think through the Adjunct Teacher Corps we can seed and support more of that sort of initiative around the country.

Senator BURR. I thank you for the work of the Education Department.

Mr. Chairman, I thank you for not only the hearing today, but also the vigilance that this committee holds as it relates to education policy, and we are a partner with the Department to make this successful. Thank you.

The CHAIRMAN. Thank you.

I think this has been an extremely helpful hearing. I do need to make one slight correction. I did hear a comment earlier in one of the questionings, that we had cut 12-7/10ths billion dollars from Pell grants. There was not a dime cut from Pell grants. We did make some savings by eliminating some corporate subsidies, and that provided some money to put into the math and science emphasis that we did for college.

I once made some comments, as Senator Isakson did, about professors in college needing to be in the classroom once every 5 years, or once every 10 years, and put that on my list of things not to bring up again for a while.

[Laughter.]

Got several things on that list, but maybe their time will come.

I do know that, as you mentioned in your testimony, that a lot of education is expectations, expectations not just by the teacher, but expectations by the parents and expectations by the communities. There are some grand examples out there. The St. Labre Indian School has a reading program, and typically they had a lot of problem with literacy and dropouts and all kinds of things. In a single year they were able to raise kids in 4th grade from 38 percent being at grade level to 95 percent being at grade level. In 2nd grade it was even more dramatic. They went from 15 percent to 100 percent at grade level. I asked what the core of the program was, and they said, "high expectations."

I am also interested and appreciative of your Commission on Future Higher Education, and know that we need to concentrate on emphasizing to kids the need to go there, and am fascinated by a program at, I think it is San Diego State, where they take 4th graders from the inner city, bus them to the college, show them the college, take a picture in front of the main building, and that is sent to the kid's parents, and on the bottom of it, it says, "Future San Diego State Student." When anybody visits the house, that is usually on the mantle or some other prominent place in the house.

And they have a very high rate of kids who go on to college. Expectations, early.

When my kids were in elementary school, the principal at that particular school instituted some new math, which, of course, shook everybody up because that was kind of a by-word of my generation. It was based on binary math, and so to get over some of the tension that would be caused by that, he had the parents come to the school and showed us what they would be teaching. It made a dramatic difference to the parents. There were many who had not done well in math, who understood in a single evening some of these math concepts, and were very sold on the kids doing it. This was a 2nd grade program. One of the things that happened at the end of the year was that the kids would go to McDonald's, and they would all order off of the menu, and all the kids in the class would keep track of what the total bill was going to be before sales tax—that is always another problem—almost every kid in the class was able to add it in their head and get it right. Math can be done.

Incidentally, one of the things they do in that kind of math is they also add from left to right, so that you are dealing with the biggest numbers first, which would be a good thing here in Washington, probably.

[Laughter.]

They discontinued the program though, because it was a boom town and a lot of kids were coming in and out, and they were not sure all the kids could keep up. It was a huge disappointment to me.

I would remind everybody that in most of the questions here today we talked about high school. Next week we are having a high school roundtable as a follow up to this hearing, and I would mention that IBM will be a part of that high school roundtable as well.

I would also mention that we do have a Web site, and people that might be listening, if they have ideas on how we can improve education, we are certainly open to that, and would appreciate them utilizing that Web site. It is one of the ways that we collect ideas so that we can hopefully get it right.

I would like to congratulate the Secretary on all of her efforts and the way that she gets it right. You do provide a lot of leadership for us, and a very forceful advocacy, and I do appreciate your high expectations of what you are working on, as well as this committee, and your ability to answer the questions. You have really stimulated a lot of ideas today. Thank you for being here.

Secretary SPELLINGS. Thank you, Senator.

[The prepared statement of Secretary Spellings follows:]

PREPARED STATEMENT OF MARGARET SPELLINGS

Mr. Chairman, Senator Kennedy, and members of the committee, thank you for the opportunity to speak with you today about the importance of education to maintaining our global leadership, and the President's proposed serious and innovative reforms that will prepare our children to become leaders themselves.

The Challenge: To Innovate Education

America has long been innovation's home. When faced with a challenge, we invent the answer: from the first telephone to global satellite communications; from the first computer to the World Wide Web; from the Wright Brothers to Neil Armstrong. To Americans, innovation means much more than the latest gadget. It means creating a more productive, prosperous, mobile and healthy society. Innovation fuels our way of life and improves our quality of life. And its wellspring is education.

Throughout his Administration, President Bush has made innovation and education top priorities. The President worked with you, other members of this committee and your colleagues in the House, to pass the most far-reaching education reform in decades, the No Child Left Behind Act (NCLB). NCLB has brought high standards and accountability to public schools and sparked a mathematics and reading revival in the early grades.

While the United States is leading the world in science and technology and making strong reforms to its education system, the rest of the world is not standing still. America no longer holds the sole patent on innovation. Inspired by our example, countries such as China, India and South Korea have invested heavily in education, technology, and research and development. America now has billions of competitors throughout the world, challenging us to set our sights even higher.

Our educational leadership has been challenged as well, with many developed nations' students outperforming ours in international tests, particularly in math and science, an ominous sign for many American schools. These test scores are linked to a lack of challenging coursework, an ominous sign for many American schools. The impact may be felt well into the future. According to some estimates, America's share of the world's science and engineering doctorates is predicted to fall to 15 percent by 2010.

This global challenge requires bold action and leadership. America has done it before. Following the Soviet Union's 1957 launch of Sputnik, the world's first satellite, Congress passed and President Eisenhower signed into law the National Defense Education Act of 1958 (NDEA). NDEA encouraged more college and university students to pursue degrees in engineering and it brought the public and private sectors together as partners to capture the interest, imagination and dedication of American students. And it worked. Within a decade, the number of science and engineering doctorates awarded in the United States annually had tripled, accounting for more than half the world's total by 1970.

Today, America faces challenges more difficult and complex than a single streaking satellite. The spread of freedom is spurring technological innovation and global competition at a pace never before seen. This trend makes it increasingly important that our economy be more flexible and responsive, to make sure that we continue to lead in innovation and technological development and to make sure we have a workforce that has the skill sets necessary to do so.

Education is the gateway to opportunity and the foundation of a knowledge-based, innovation-driven economy. Employers are increasingly looking for workers who have analytical, technical and problem-solving skills.

We have to run to keep up. A high school diploma, once desirable, is now essential, and, increasingly, insufficient. About 90 percent of the fastest-growing occupations of the future will generally require some postsecondary education. It is therefore unacceptable that among all 9th graders, about three in ten do not graduate on time; or that for black and Hispanic students the figure is about five in ten. If current trends continue, by 2012, over 40 percent of factory jobs will require postsecondary education, according to the National Association of Manufacturers. And yet, almost half of our 17-year-olds do not have the basic understanding of math needed to qualify for a production associate's job at a modern auto plant.

Improving education is critical not only to America's economic security, but also to our national security. Today, not one but 3,000 satellites circle the earth. U.S. soldiers use the latest communications and surveillance technology to fight the global war on terrorism. Advanced math skills are used to identify and undermine terrorist networks. Government and the private sector engineer new ways to protect lives and infrastructure from harm. And the effort to spread freedom to other nations and cultures demands speakers fluent in languages such as Arabic, Farsi, Chinese, and Russian. Addressing these challenges will advance opportunity and entrepreneurship at home and promote democracy and understanding abroad.

Rigorous instruction, high standards and accountability are helping to raise achievement levels among American students, particularly in the early grades. As all students work to achieve proficiency in math and reading by 2014, an innovative education reform effort is needed.

America's civic, political and business leaders agree: To sustain our quality and way of life, we must act now. And President Bush is leading the charge by proposing investments and reforms through a number of key initiatives that I would like to outline today.

The Answer: President Bush's Education Agenda

President Bush's answer to America's challenge begins with the American Competitiveness Initiative. This multi-agency Initiative will commit \$5.9 billion in fiscal year 2007, and more than \$137 billion over the next 10 years, to strengthen edu-

cation, promote research and development and encourage entrepreneurship. In the research arena, it will increase our investment in physical science and engineering research, the results of which will fuel technological innovation for decades to come. In the education arena, the initiative will bring together leaders from the public sector, private sector and education community to better prepare our students for the 21st century. The initiative will place a greater emphasis on math instruction from the earliest grade levels. It will ensure that high schools offer more rigorous coursework, including Advanced Placement and International Baccalaureate courses in math, science and critical-need foreign languages. It will inform teachers of the most effective, research-based approaches to teaching math. It will encourage professionals in those fields to become teachers themselves. And it will evaluate all federally funded math and science education programs to ensure the most effective use of the taxpayers' dollars.

The President's High School Reform initiative will help ensure that a diploma becomes a ticket to success for all graduates, whether they enter the workforce or go on to higher education. It will bring high standards and accountability to high schools by aligning their academic goals and performance with the *No Child Left Behind Act*. Through assessments and targeted interventions, it will help educators raise achievement levels and close the achievement gap. It will also help alleviate the dropout problem by focusing more attention on at-risk students struggling to reach grade level in reading or math.

Finally, the President's National Security Language Initiative, announced on January 5, 2006, will help more American students master critical-need foreign languages to advance global competitiveness and national security. This joint project, in collaboration with the Department of State, Department of Defense and the Director of National Intelligence, will train teachers and aid students in those fields.

The Challenge: Knowledge of Math and Science

In this changed world, knowledge of math and science is paramount. In the words of BusinessWeek, "It's a magnificent time to know math." "Math entrepreneurs" are translating the world into numbers—which translates into big salaries. According to the Bureau of Labor Statistics, new and replacement job openings requiring science, engineering or technical training will increase by more than 24 percent, to 6.3 million, between 2004 and 2014.

Of all of the recommendations contained in the National Academies' report, *Rising Above the Gathering Storm*, the highest priority is to vastly improve K–12 math and science education. Schools must help students develop the skills they will need to compete and succeed in higher education and the workforce, which are increasingly connected in this changed world. All Americans must be technically adept and numerically literate—regardless of their chosen occupation—so that they can make informed decisions and enjoy advancement in their careers. And this technically and numerically literate population must also yield additional practitioners of math, science, and engineering to meet the needs of academia and industry well into the future. Industry must do its part to ensure that career opportunities provided to those with training in math, science and engineering are as stable and financially rewarding as other jobs, such as medicine, law and finance.

We clearly have a long way to go. High school test scores in math have barely budged since the early 1970s. And less than half of high school graduates in 2005 were ready for college-level math and science coursework, according to ACT.

In 1983, the landmark *A Nation at Risk* report recommended that high school students be required to take a minimum of 3 years of math and 3 years of science to graduate. Yet today, only 22 States and the District of Columbia require at least this amount to graduate in the class of 2006. Even fewer require high school exit exams (which are often administered in 10th or 11th grade, leading many employers and universities to discount the results). Just one State—Alabama—calls for current students to take 4 years of both science and math to graduate.

A major part of the answer is teacher training. When we compare the U.S. education system with that of the top performing countries, we find several significant differences, most notably that a much lower proportion of U.S. math and science teachers actually have a degree in the area in which they are teaching. Because our elementary schools employ generalist teachers who are required to teach all academic subjects, most have degrees in education and have completed little or no coursework in math or science. Three out of four 4th-grade math and science teachers in the United States do not have a specialization in those subjects. And students from low-income communities are far less likely than their more affluent peers to have teachers certified in the subject they teach. With two-thirds of our math and science teachers expected to retire by 2010, we have a challenge to produce new teachers to fill that gap, but we also have an opportunity to change the way in

which new teachers are trained so that future teachers will have greater content knowledge in math and science.

Strengthening math and science standards is an economic imperative, for the Nation and for individual citizens. According to Department statistics, students who take advanced math courses in high school (such as trigonometry, precalculus and calculus) are far more likely to earn a bachelor's degree. Additionally, students from low-income families who acquire strong math skills by the 8th grade are 10 times more likely to finish college than peers of the same socioeconomic background who do not.

Still, old attitudes about math die hard. A recent survey commissioned by the Raytheon Company found that 84 percent of middle school students would rather clean their rooms, take out the garbage or go to the dentist than do their math homework. According to the Business Roundtable, just 5 percent of parents say they would "try to persuade their child toward careers in science, technology, mathematics or engineering." Many people still view math and science as "nerdy" subjects with little relevance to the "real world." Like it or not, that world has changed forever.

The Answer: American Competitiveness Initiative

President Bush's *American Competitiveness Initiative* seeks to improve learning and instruction in mathematics and science. The Department of Education's proposals within this Initiative are as follows:

- *National Math Panel*: Based on the influential National Reading Panel, the National Math Panel would convene experts to empirically evaluate the effectiveness of various approaches to teaching math, creating a research base to improve instructional methods for teachers. It would lay the groundwork for the Math Now program for grades K–7 to prepare every student to take and pass algebra;

- *Math Now for Elementary School Students*: Like the successful and popular Reading First program, Math Now for Elementary School Students would promote promising, research-based practices in mathematics instruction and prepare students for more rigorous math coursework in middle and high school;

- *Math Now for Middle School Students*: Similar to the current *Striving Readers Initiative*, Math Now for Middle School Students would diagnose students' deficiencies in math proficiency and provide intensive and systematic instruction to enable them to take and pass algebra;

- *Advanced Placement-International Baccalaureate (AP-IB) Incentive Program*: The AP-IB Incentive Program would train 70,000 additional teachers to lead AP-IB math and science courses. It would increase the number of students taking AP-IB tests to 1.5 million over the next 5 years with the goal of tripling the number of passing test-takers to approximately 700,000;

- *Adjunct Teacher Corps*: The Adjunct Teacher Corps would provide funding to match contributions from States and the private sector to train 30,000 qualified math and science professionals to become adjunct high school teachers by 2015; and

- *Evaluating the Effectiveness of Federal Science, Technology, Engineering and Math (STEM) programs*: An administration-wide effort would be undertaken to determine which Federal education programs are most effective in raising achievement in math and science, which deserve more funding and which should be consolidated to save taxpayer money. The initiative would also align these education programs with the goals and aims of the *No Child Left Behind Act*. According to the Government Accountability Office, thirteen agencies reported spending \$2.8 billion on 207 education programs in fiscal year 2004. About half of the programs dedicated to math and science received less than \$1 million in funding, with most targeted to postsecondary education.

- *Including Science Assessments in NCLB*: NCLB requires every State to develop and administer science assessments once in each of three grade spans by the 2007–08 school year, and including these assessments in the accountability system will ensure students are learning the necessary content and skills to be successful in the 21st century workforce.

Other Math and Science Initiatives

- *Academic Competitiveness grants and SMART Grant Program*: This higher education grant program was a key component of the Higher Education Reconciliation Act. I know that members of this committee, particularly Chairman Enzi and Senator Frist, worked very hard to get this important program into the legislation that was just signed by the President.

- This program will build on the success of the Pell Grant program and benefit more than 500,000 students in need.

- Academic Competitiveness grants will provide increased funds for low-income students who take a rigorous academic curriculum in high school. Grants in the amount of \$750 will be awarded to qualified first-year college students who completed a rigorous high school program; grants in the amount of \$1,300 will be awarded to second-year students who completed a rigorous program and who maintain a 3.0 average in college.
- SMART grants will go to college juniors and seniors studying math, science or critical-need foreign languages who also maintain a 3.0 GPA. This will encourage more students to go into fields that improve America's security and competitiveness.
- *Mathematics and Science Partnerships*: This program supports the American Competitiveness Initiative by providing State formula grants to help improve students' academic achievement in rigorous math and science courses. It also assists teachers by integrating proven, research-based teaching methods into the curricula.
- *Expanded Teacher Loan Forgiveness*: This popular program offers up to \$17,500 (up from \$5,000) in loan forgiveness for highly qualified math, science and special education teachers serving challenging, low-income schools and communities.

The Challenge: Accelerating Our Schools' Progress

Innovating and improving America's schools will not occur overnight. It took time for eight other developed nations to surpass America's high school graduation rate among adults aged 25 to 34; and it will take time for the United States to regain its leadership. We must start by accelerating our progress.

A comprehensive problem demands a comprehensive solution, extending from kindergarten through high school graduation. The good news is that educators and policymakers are learning more and more about what works. A half-century ago, the United States turned the threat of Soviet competition into proof of our ability to improve our schools and quality of life. Just 4 years ago, the United States turned a growing achievement gap into the bipartisan *No Child Left Behind Act*.

The law set a course for proficiency for all students in the core subjects of reading and math by the year 2014. Students in grades 3 through 8 are now learning under high standards. Teachers are using proven instructional methods in reading. Schools are being held accountable for results. Parents have more information and choices. And States have more flexibility to spend Federal K-12 education resources, which have increased by 41 percent since 2001.

The early results are in. Across the country, academic achievement has risen significantly in the earliest grades, with math scores at all-time highs, including among African-American and Hispanic students. In the last 2 years, the number of 4th graders who learned their fundamental math skills increased by 127,000 according to Department data. Long-term trends show that more reading progress was made among 9-year-olds over the last 5 years than in the previous 28 years combined. Meanwhile, according to the Nation's Report Card, the achievement gaps in reading and math between white and African-American 9-year-olds and between white and Hispanic 9-year-olds are at all-time lows. Educators use terms like "amazing," "stunning" and "remarkable" to describe the progress on long-term NAEP.

No Child Left Behind has set the goal of every child achieving, but the States and schools themselves have done the heavy lifting to implement curriculum standards and assessment protocols that they will use to meet these standards. For the first time, all 50 States have unique accountability plans in place, with real consequences attached. The results can be seen in schools like Maryland's North Glen Elementary. In 2003, just 57 percent of North Glen's students were proficient in reading, while 46 percent were proficient in math. Those numbers have skyrocketed to 82 percent and 84 percent, respectively.

Another example is Charles L. Gideons Elementary School in Atlanta. The number of its students meeting Georgia's standards in reading has increased by 23 percentage points since 2003. For math the news is even better: a 34 percentage-point improvement during the same period. The National Math Panel will examine schools like this one that have made significant progress to determine "what worked" in improving mathematics education and performance. If we better understand what worked at these model schools, we can then use programs like the new Math Now program to disseminate these principles and practices to teachers across the country.

A districtwide success occurred in Garden Grove, California. Three-fourths of the Garden Grove Unified School District's students do not speak English. Nearly 60 percent are from low-income families. Nevertheless, all but two of the district's 67 schools met or exceeded their Adequate Yearly Progress goals under the law.

The *No Child Left Behind Act* was designed to improve achievement. But it has also shown us what is achievable as a Nation. Educators, administrators and public officials are working together, united behind a worthy goal. Now it's time to apply the act's successful principles to our Nation's high schools.

There is not a moment to waste. Governors and business leaders are united in calling for urgent reform. Every year approximately 1 million students drop out of high school, costing the Nation more than \$260 billion dollars in lost wages, taxes and productivity over the students' lifetimes. A high school graduate can expect to earn about \$275,000 more over the course of his or her lifetime than a student who doesn't finish high school; a college graduate with a bachelor's degree can expect to earn about \$1 million more. Dropouts are also 3½ times more likely to be arrested, according to reports. A key goal of the President's High School Reform Initiative is to address the academic needs of at-risk students so that they stay in school, improving their quality of life and that of their fellow Americans.

The Answer: The President's High School Reform Initiative

The President's High School Reform Initiative would hold high schools accountable for providing high-quality education to all students. And it would help educators implement strategies to meet the needs of at-risk high school students. The proposed program would make formula grants to States to support:

- The development, implementation and evaluation of targeted interventions designed to improve the academic performance of students most at risk of failing to meet State academic standards; and
- Expanded high school assessments that would assist educators in increasing accountability and meeting the needs of at-risk students.

Interventions would be designed to increase the achievement of high school students; eliminate achievement gaps between students from different ethnic and racial groups and income levels; and help ensure that students graduate with the education, skills and knowledge necessary to succeed in postsecondary education and in the technology-based global economy.

A key strategy would be the development of individual performance plans for students entering high school, using 8th grade assessment data in consultation with parents, teachers and counselors. Specific interventions could include programs that combine rigorous academic courses with vocational and technical training, research-based dropout prevention activities, and the use of technology-based assessment systems to closely monitor student progress. In addition, programs that identify at-risk middle school students for assistance would help prepare them to succeed in high school and enter postsecondary education. This includes college preparation and awareness activities for students from low-income families.

The President's proposal also would require States to develop and implement reading and mathematics assessments in two additional grade levels in high school, building on the current NCLB requirement for testing once in grades 10–12. The new assessments would inform strategies to strengthen school accountability and meet the needs of at-risk students.

Additional Support

- *Striving Readers*: First funded in 2005, this program would be expanded significantly to reach more secondary students reading below grade level, which puts them at risk of dropping out. Students would benefit from research-based interventions coupled with rigorous evaluations. Schools would benefit from activities and programs designed to improve the overall quality of literacy instruction across the entire curriculum.

The Challenge: Promoting Freedom and Understanding

America faces a severe shortage of people who speak languages that are critical to its national security and global competitiveness:

- According to the Center for Applied Linguistics, less than ¼ of public elementary schools report teaching foreign languages, even though a child's early years are the best years in which to learn a new language.
- Less than 1 percent of American high school students study Arabic, Chinese, Farsi, Japanese, Korean, Russian or Urdu—combined.
- Less than 8 percent of undergraduates in American universities take foreign language courses, and less than 2 percent study abroad in any given year.

While only 44 percent of U.S. high school students were studying a foreign language in 2002, learning a second or even a third foreign language is compulsory for students in the European Union, China, Thailand and elsewhere.

More than 200 million children in China study English. By comparison, only about 24,000 elementary and secondary school children in the United States study

Chinese. Many students in other nations begin learning another language before they're even 10 years old. They will have an edge over monolingual Americans and others in developing new relationships and business connections in countries other than their own.

The Answer: The President's National Security Language Initiative

Critical-need foreign language skills are necessary to advance the twin goals of national security and global competitiveness. Together with the Department of State, Department of Defense and the Director of National Intelligence, the Department of Education proposes to offer grants and training for teachers under President Bush's National Security Language Initiative.

The Initiative would increase the number of Americans who speak and teach foreign languages, with an emphasis on critical-need languages. It will strengthen and refocus the Foreign Language Assistance Program, and will initially enable 24 school districts across the country to create partnerships with colleges and universities to develop critical-need language programs. Among the critical-need languages targeted under the initiative are Arabic, Chinese, Korean, Japanese, and Russian, as well as languages in the Indic, Iranian and Turkic families.

The National Security Language Initiative will also provide funding to create a Language Teacher Corps, with the goal of having 1,000 new critical foreign language teachers in U.S. schools by the end of the decade. And it will enable the creation of an "e-Learning Language Clearinghouse" and expanded Teacher-to-Teacher seminars to assist foreign language teachers anytime, anywhere.

Conclusion

Our schools helped make the 20th century the "American Century." The 21st century remains to be claimed. But Americans have never backed down from a challenge. This changing world offers another opportunity for Americans to shine, and the President's American Competitiveness Initiative and the rest of his education agenda will help set the course.

America's schools have made great progress in improving academic achievement in the early grades. But like athletes or musicians, children of all ages must work hard each and every day if they wish to compete, perform and succeed, and their schools must show them the way. The President's education agenda will help prepare the students of today to become the successful leaders—the pioneers, discoverers and Nobel Prize winners—of the next American Century.

I look forward to working with Congress on implementing these bold initiatives.

Thank you for the opportunity to testify this morning. I am happy to answer any questions you have.

The CHAIRMAN. That concludes the hearing.
[Additional material follows.]

ADDITIONAL MATERIAL

PREPARED STATEMENT OF SENATOR ENSIGN

I would like to thank Secretary Spellings for testifying before the Senate Health, Education, Labor, and Pensions Committee this morning to discuss President Bush's "American Competitiveness Initiative." I would also like to thank Chairman Enzi for holding a hearing on this very important issue.

As Chairman of the Senate Republican High Tech Task Force, I know very well the important roles that competitiveness and innovation play in maintaining our position in the world economy. We must be proactive in continuing to nurture competitiveness and innovation—traits that have historically fueled our economy and our success.

Every year I meet with the CEO's of Fortune 500 Technology companies. They are gravely concerned about the education of our Nation's children, especially in the areas of math, science, and engineering. If we fail to engage our students in these subjects, and if our students therefore fail to excel, we are laying the groundwork for an American economy that is left behind in the global landscape.

In an effort to address these challenges, I have introduced S. 2109, the National Innovation Act, along with Senator Lieberman. This legislation is based on the recommendations of the National Innovation Initiative and builds on and expands existing programs within the National Science Foundation (NSF). This includes expansion of both the Graduate Research Fellowship Program and the Graduate Education and Research Traineeship Program. My legislation encourages additional higher education institutions to develop Professional Science Master's Degree Programs to increase the number of highly skilled graduates entering the science and technology workforce. My legislation also strengthens the Federal Governments' commitment to science education by expanding the Science, Mathematics, Engineering, and Technology Talent expansion program. The Tech Talent expansion program encourages American universities to increase the number of graduates with degrees in mathematics and science. Finally, the National Innovation Act provides funding for the Director of NSF to award grants to local educational agencies to implement innovation-based experiential learning in 500 secondary schools and 500 elementary or middle schools.

The President's American Competitiveness Initiative complements many of the proposals put forth in the National Innovation Act. The focus on mathematics education programs in elementary and middle schools is crucial. In fact, I am working on legislation that would create a math and science middle school program that is very similar to the Math Now for Middle School Students proposal. It is imperative that we keep our students on par with other leading industrial nations in math and science education.

I was particularly pleased to see the Department's new Adjunct Teacher Corps proposal. With teacher shortages in key subject areas reaching critical heights in many areas, it is necessary to find new avenues for professionals to enter into the teaching profession. I believe that a retired physicist, with some additional

training in pedagogy, could make an excellent high school physics teacher.

The most compelling piece of the President's initiative was the America's Opportunity Scholarships for Kids proposal. I have always supported student vouchers as a way of injecting competition into our education system. An article by Maurice McTigue was brought to my attention a few years ago that explained the decentralization of the New Zealand government. As part of that transformation, each school, whether it was public, private, or parochial, received a per pupil amount of funding from the government. Some adjustments in funding were made for children with disabilities and a few other factors. In the first few years of the program, public school attendance did drop by 2–3 percentage points. However, since that time, public school participation is at a higher level than ever before. More importantly, student performance improved significantly. Why? Competition.

The Federal Government has taken on the role of assisting those schools that are the most in need of assistance. Vouchers go a step further and help those children who are most in need of a helping hand to succeed in school. The President's proposal does just that.

It is my hope that the President's American Competitiveness Initiative will provide the spark needed to begin serious consideration of math and science education programs as well as reignite the innovation and competitiveness that must be at the heart of our education systems. I believe that it is important to build on what the Federal Government is already doing and to fill in the gaps from there. During this time of extreme budget restraints it is important to review and monitor the programs we currently have and expand slowly and appropriately from there.

I look forward to working with you, Secretary Spellings, and other members of the Senate to move this important agenda forward.

PREPARED STATEMENT OF SENATOR DODD

Thank you, Mr. Chairman. Secretary Spellings, welcome, and thank you for coming today to talk about the President's American Competitiveness Initiative. I look forward to hearing more about this program as well as asking additional questions about how it might work.

Last fall, the National Academy of Sciences released a report entitled, *Rising Above the Gathering Storm*. This report examined America's competitiveness in the global economy specifically as it relates to math and science. What the Academy found was startling.

In a 2003 international assessment of 15-year-olds, American students placed 16th in reading, 19th in science, and 24th in math. On the 2005 National Assessment of Educational Progress (NAEP) in math, only 36 percent of 4th graders and 30 percent of 8th graders performed at or above proficiency. The vast majority of students in our high schools will never take an advanced science or mathematics course. About 30 percent of high school math students have teachers who did not major in math in college or who are not certified to teach it. And, at the college level, fewer than half of under-

graduates entering college in the 1990's with a science or engineering major complete those degrees.

China graduates twice as many students as the United States with bachelors degrees and has six times as many graduates majoring in engineering. In 2001, India graduated almost a million more students from college than the United States did. And researchers in Japan, Taiwan and South Korea now account for more than $\frac{1}{4}$ of all U.S. industrial patents awarded each year. We need to turn this tide.

When the Academy released their findings, they recommended specific steps Congress could take to ensure the pre-eminence of America's science and technology expertise.

Just a few weeks ago, Senators Bingaman and Alexander introduced legislation in the Senate designed to carry out the report's recommendations—the Protecting America's Competitive Edge (PACE) Acts. I am proud to be an original cosponsor of this bill. Educationally, PACE's primary focus is to find young men and women who are interested in science and math, provide them with highly qualified teachers to help them pursue their interests, and assist them in making their dreams of a math/science degree at a 4-year university come true.

In many ways, the American Competitiveness Initiative would appear to share the same goals as the PACE Acts. I am not sure, however, that it will achieve the same ends.

I applaud your efforts to review the existing research in math instruction and your desire to disseminate these practices. I also applaud your efforts to increase access to advanced placement courses, which effectively translates to access to a rigorous curriculum. I do, however, question the instruction of an adjunct high school faculty corps.

It appears that members of this corps could circumvent the teacher certification process, resulting in teachers who are not highly qualified teaching in our schools. I am also concerned that, unlike PACE, there is no emphasis on the professional development of existing teachers. In addition, I am concerned that at a time when NCLB is woefully underfunded, an additional measure will be added to the adequate yearly progress calculation of NCLB. I propose that first we provide our schools with what is needed to successfully implement NCLB as it currently stands.

I realize that the point of today's hearing is to discuss the President's math-science initiative but I would be remiss if I did not take the time to reflect on the President's most recent budget proposal. At a time when more is demanded of our schools, especially in relation to NCLB, the education budget of this country is woefully underfunded once again.

This year, 42 education programs are eliminated in the President's budget. These eliminations include programs that prepare low-income kids for college, provide drug and alcohol education in elementary and secondary schools, and provide funding for the Perkins Vocational and Technical Education Program the largest source of Federal funding for high schools.

Aside from eliminations, NCLB is underfunded by \$15.4 billion and Title I, NCLB's signature program for low-income students, is underfunded by \$12.3 billion.

IDEA is funded at just 17 percent of the cost of providing services—1 percent less than was provided last year and less than half of the 40 percent full funding we set as our goal 31 years ago. Once again, school boards will be passing these costs on to taxpayers.

After-school initiatives will be level-funded, leaving behind 2 million students who could and should be served. And, at a time when we are talking about access to the next generation of scholars and scientists, the maximum Pell Grant is frozen for the 4th year in a row at \$4,050.

In addition, I find it egregious that amidst these harsh cuts, the Administration has introduced a \$100 million voucher program. I ask you, in a time of accountability, will these schools be required to educate all children, administer subject matter tests to measure proficiency, and be subject to penalties if their students don't perform well?

Mrs. Secretary, this budget is insufficiently committed to helping students. If we fail to adequately fund No Child Left Behind, if we wipe out a whole host of education programs, our States, our localities, our school districts, local taxpayers, and most importantly, our children, will suffer.

Budgets are about priorities. What priority could be more important than ensuring the future of our children by providing them with a first class education? How do we get to a first class math and science education if we don't have resources to fund the basics? Thank you.

PREPARED STATEMENT OF SENATOR MURRAY

Secretary Spellings, thank you for coming today to talk with us about the role of education in global competitiveness. Growing up in a small town in Washington, my parents always admonished me to clean my plate at dinnertime. There were starving children in India and China who would happily change places with me, they often said. Well, the message from today's parents to their children is that they had better attend to their homework after dinner, because children in India and China are doing just that. Times certainly have changed and America can no longer take for granted its role as a world leader in science and technology. Accordingly, I share the President's commitment to strengthening our educational competencies in math and science. Many of the elements of the American Competitiveness Initiative, including efforts to increase the number of math and science teachers and grow the number of Advanced Placement programs, are part of the Protecting America's Competitive Edge through Education and Research Act of 2006, which I cosponsored.

That being said, I want to stress that I view the components of the PACE Education Act as a complement to, and not a substitution for, the other Federal education investments we have made over the past 40 years. While science and math competence are undoubtedly a critical piece of what our students need to compete globally, it cannot come at the expense of training our Nation's teaching workforce, helping disadvantaged students succeed academically, and ensuring that our high school students graduate and have the financial means to attend postsecondary education. Global competition demands that we do more, not less, to help our

students succeed. President Bush released his budget request earlier this week. As a document of our values and priorities, the Federal budget should reflect our commitment to educating the Nation's youth. Yet the President's fiscal year 2007 budget request proposes the deepest cuts to Federal education funding in the 26-year history of the Department, which leads me to question the priorities and values of this Administration. Actions speak louder than words. A few examples:

Even though provisions of No Child Left Behind require our teachers to be highly qualified, the President has elected not to increase any of the established programs that help current and future teachers meet these requirements. His fiscal year 2007 budget proposes level-funding, among others, the Teacher Incentive Fund, Troops-to-Teachers and the Transition to Teaching programs. In addition, he has requested eliminating the Higher Education Act's Teacher Quality Enhancement Program. While developing state-of-the-art math and science curricula and attracting high-quality teachers are important, so too is ensuring that our teachers have the pedagogical tools to effectively engage students in the classroom. A Nobel Prize winner may be the world's foremost expert in quantum physics, but that doesn't necessarily mean he can adequately and appropriately convey his knowledge in a way that is beneficial for student learning. Teacher training is an important component of global preparedness, and I am disheartened to see this underfunded in the President's budget.

To compete globally, we must ensure that all our students have the tools and skills to succeed in the world economy. Preparation for this challenge begins in the early years. That is why programs such as Head Start, which prepares low-income children to enter kindergarten ready to learn, are so critical. Yet the President's budget does not include a funding increase for this important program. Choosing to forego a cost-of-living adjustment, his budget effectively ensures that fewer children will receive Head Start's valuable education, health and nutrition services. The President's failure to dedicate Federal resources to close the achievement gap abounds in his budget request, from inadequate support for title I grants to shortchanging after-school programs to scaling back Federal support to special education. This is not the comprehensive approach we should be taking to prepare our Nation's youth.

Sixty percent of new jobs in the 21st century will require a college education. Given that only one out of three members of the U.S. workforce has attended a postsecondary institution, our commitment to education must extend into colleges and universities. One of the best ways we can open the door to college is to help America's teenagers graduate from high school. With our national high school graduation rate hovering at an abysmal 69 percent, I believe we must empower schools to offer the best possible support for students and teachers. That is why I introduced my Pathways for all Students to Succeed Act. The PASS Act would provide resources to target academic tutoring and counseling to students most in need of help. With 3,000 secondary students dropping out of school each day, we must redouble our efforts to make our high schools places where all students can learn.

In addition to boosting high school graduation rates, we must assist students in the transition from high school to college by providing financial resources to facilitate access to higher education. Yet recently the Federal Government cut \$12.7 billion from student loans that help low- and middle-income families pay for college. This decision, during a year in which tuition and fees increased by 7.1 percent for 4-year public universities and 5.9 percent for private universities, does not reflect our national priorities. In the same vein, the value the President purports to place on higher education is not reflected in his budget, which level-funds the Pell Grant program for the 4th year in a row.

The Bush Administration rightly is concerned about our children's math and science proficiencies. But American competitiveness demands a more comprehensive approach to education, one that necessitates an obligation to train our Nation's teachers, close the achievement gap, and promote educational opportunities throughout the K-16 pipeline. Today's children should be reminded that their counterparts in China and India are making quick gains in math and science. But our students need more than warnings about finishing their homework. They also need the Federal Government to support their efforts and provide opportunities for them to learn and progress academically. Our Nation and our children deserve nothing less.

RESPONSE TO QUESTIONS OF SENATOR ENZI BY SECRETARY SPELLINGS

Question 1. The National Foreign Language Initiative announced by the President on January 5, 2006 involves cooperation between the U.S. Department of State and the Department of Education. Could you please describe the Department of Education's role in this initiative, how grants such as the Foreign Language Assistance Program (FLAP) will be focused, and the steps you will be taking to attract teachers to this high need area?

Answer 1. The Department of Education worked with the Departments of State and Defense and the Director of National Intelligence in creating the National Language Security Initiative to coordinate critical foreign language instruction among agencies and ensure that each agency is maximizing resources to create a pool of critical language speakers. The Department of Education's role in the National Security Language Initiative is to improve the K-16 pipeline so that more students are studying and becoming proficient in critical needs languages. The Department's current Foreign Language Assistance Program will prioritize those grantees who focus on critical needs languages, especially those programs that start before high school and can provide an articulated program of critical needs foreign language instruction. In addition, the Advancing America Through Foreign Language Partnerships program, for which we have requested \$24 million in the fiscal year 2007 budget, will connect institutions of higher education with school districts to create critical needs foreign language programs that lead students to proficiency in these languages. This model, which was started by the Department of Defense, shows promise in linking colleges, which already have critical needs language programs, with schools that would like to start these programs.

In addition, the Department of Education has placed a priority on training teachers to teach critical needs languages. The Department has proposed \$5 million for the Language Teacher Corps, which would train college graduates with critical foreign language skills to become teachers in the classroom. In addition, the Department proposes \$3 million for the Teacher-to-Teacher initiative to fund intensive summer training sessions for foreign language teachers.

Question 2. Career and technical education programs have demonstrated their success in keeping students in high school. To maintain America's competitiveness, it is important that more high school students graduate with the knowledge and skills necessary to provide them with an increased number of high quality opportunities after graduation. In that capacity, Perkins is part of the competitiveness pipe-

line. What suggestions would you make so that we clearly connect the Perkins to the American Competitiveness Initiative?

Answer 2. If the Congress reauthorizes the Perkins Act, it should support strong career and technical education (CTE) programs that are linked to a rigorous academic curriculum and to postsecondary education programs that lead to a postsecondary degree or certificate. We know that all high school students need to learn rigorous academic content and skills, whether they expect to enter the workforce immediately after graduation or to pursue postsecondary education. Our economy increasingly demands workers who have a high level of knowledge and skills, and the fastest-growing jobs require some education beyond high school. Most high-paying, high-demand, technical occupations now require completion of some training or education beyond high school, and most workers will need to upgrade their skills throughout their lifetime. However, less than 10 percent of vocational students scored at or above proficiency in 2000 National Assessment of Education Program (NAEP) in mathematics and only 29 percent scored at or above proficiency in the 1998 NAEP for reading.

As another mechanism for ensuring that vocational education students are prepared to compete in the global economy, any new Perkins legislation should also incorporate strong accountability requirements. In order to ensure that States implement strong accountability measures and that Federal funds are directed to activities that will improve student achievement and graduation rates for CTE students, the Perkins program should require that States' accountability systems use valid and reliable measures of the core indicators of performance at both the secondary and postsecondary levels, and apply these measures to all categories of students served by CTE programs. Furthermore, States should not be permitted to use their existing indicators of performance to measure the achievement of CTE students, when those indicators would otherwise be in conflict with statutory requirements. Allowing a State to use its current measures of performance where these measures are weak, invalid, or unreliable would perpetuate a weak accountability system that is unable to track, or create incentives for, real improvements in performance.

Question 3. It seems that we are on the right track with including science as a part of testing in NCLB, but is testing enough? There is a lack of support, especially at the elementary level, for science in the Department's 2007 budget. Do you have additional ideas that would help get more science into elementary classrooms?

Answer 3. Yes, NCLB requires every State to develop and administer science assessments once in each of three grade spans by the 2007–08 school year. States are well on their way to completing this requirement. Our proposal would include these assessments in the accountability system to ensure students are learning the necessary content and skills to be successful in the 21st century workforce. As I've said many times, what gets tested gets taught. By including science in the accountability program, teachers, principals, students, and parents will focus on ensuring students learn this content.

Question 4. In the future, just about everyone will need postsecondary education in order to get a good job. To be prepared for postsecondary, students need to graduate from high school on time and without the need for remediation. Please describe some models that support successful transitions from high school to postsecondary education and how you plan to spread the word of their successes in order to strengthen high schools across the Nation.

Answer 4. There are numerous studies that suggest different programs and approaches can be effective in assisting low-income and disadvantaged students make the transition from high school to college, but there has not been enough rigorous, scientifically-based research to determine the best methods for helping all students prepare for and succeed in college. Our current, disjointed approach has not served all students well. That is why we believe a targeted and comprehensive effort is needed. We believe our proposed \$1.5 billion High School Reform initiative will do a better job of improving high school education and preparing students to succeed in college. Our High School Reform initiative would focus resources at the State and local levels, with a strong emphasis on scientifically-based research to determine what works. The initiative also deepens the national knowledge base on what is effective in improving high schools and secondary school student achievement by supporting and disseminating scientifically based research on specific interventions that have promise for improving outcomes.

Over the last decade, we have made great strides in raising the educational aspirations of young people. More than 90 percent of students who were in 10th grade in 2002, for example, reported that they expected to earn a postsecondary credential. Our challenge now is ensuring that students leave high school with the prepa-

ration they will need to realize these ambitious goals. The Department's fiscal year 2007 budget request includes a comprehensive set of initiatives to address that challenge.

Completing a rigorous academic program in high school is essential to making a successful transition to postsecondary education. *The Toolbox Revisited: Paths to Degree Completion from High School through College*, a recently released Department study, concluded that completing academically challenging course work in high school, including Advanced Placement (AP) courses and mathematics coursework beyond the level of algebra II, dramatically increased the likelihood of a student earning a bachelor's degree. *Courses Count: Preparing Students for Postsecondary Success*, a report issued by ACT last year, also found that completing at least one mathematics course beyond algebra II, as well as biology, chemistry, and physics, improved student success in the first year of college.

However, not all high schools offer the rigorous coursework students need for postsecondary success. *Toolbox Revisited* found that nearly half of African-American students and 55 percent of Hispanic students attended high schools that did not even offer calculus. A recent National Center for Education Statistics survey found that one-third of U.S. public high schools do not offer any AP courses. Moreover, even when high schools do offer a full complement of rigorous courses, too many students are unable to access them because they enter high school with reading and mathematical skills that are significantly below grade level.

High schools also can help more students transition successfully to postsecondary education by providing comprehensive college transition services and supports, such as tutoring and academic enrichment activities, and counseling and information about college options, testing and admission requirements, and financial aid. These are particularly important for students whose parents have never attended college, but are useful for all students. Unfortunately, too often these services are offered as part of an "add-on" outreach program that serves only a small number of students, rather than delivered comprehensively to all students and integrated into the daily work of the school.

The President's \$1.5 billion High School Reform initiative would help States better prepare students for postsecondary education by supporting the development and implementation of interventions to equip all high school students with the rigorous academic preparation and transition supports they need to enter and succeed in higher education. A key strategy would be the use of 8th-grade assessment data, in consultation with parents, teachers, and counselors, to develop individual performance plans for students entering high school. The President's initiative also would give States the flexibility to target Federal resources to address the most pressing needs of their high schools. While some States, for example, may wish to use Federal dollars to improve their vocational education programs, others may decide that improving the quality of their algebra II and chemistry offerings are a greater priority. Similarly, instead of distributing Federal dollars for college transition services and supports in discretionary grants that serve small numbers of students, the President's proposal would enable States to use these resources to support more comprehensive strategies that serve all students, giving particular attention to the needs of at-risk students and those whose parents never attended college.

The proposal also would require all States to develop and implement reading and mathematics assessments at two additional grades in high school, building on the current NCLB requirement for annual testing once in grades 10–12. The new assessments would strengthen school accountability and help school administrators, teachers, and parents keep students on track for graduation and success in postsecondary education.

The President is proposing to complement the High School Reform initiative with another \$1.1 billion¹ in targeted investments in fiscal year 2007 to improve the academic preparation of high school students for postsecondary success. These investments include:

- \$122 million for the AP program, including a \$90 million increase to support a multi-year initiative to expand access to AP coursework by training an additional 70,000 teachers to deliver AP math, science, and critical language courses, while helping an additional 700,000 students pass the AP/IB exams in these subjects;
- \$25 million for the Adjunct Teacher Corps to create opportunities for qualified professionals from outside the K–12 educational system to teach secondary school courses in the core academic subjects, with an emphasis on mathematics and science;

¹I was unable to determine what portion of the \$850 million was reserved for AC grants, and what was reserved for SMART. These numbers need to be revised to include only the funds allocated for the AC grants.

Question 5. With reconciliation, we have dealt with the mandatory programs in the Higher Education Act, but we have yet to deal with the discretionary programs many of which focus on supporting low-income and minority students. What recommendations do you have for us as we move the remainder of the higher education reauthorization forward?

Answer 5. Our priorities in higher education are to improve and increase access and strengthen institutions. The administration's reauthorization proposals include a number of initiatives to increase access to postsecondary education for low-income students and support institutions. These changes include: redirecting funding for high-school related programs in the Higher Education Programs to the proposed High School Reform initiative; simplifying the grant application process for Tribally Controlled Colleges and Universities and Tribally Controlled Postsecondary Vocational and Technical Institutions; and continuing the President's commitment to graduate fellowships and strengthening American education in the areas of foreign language and international studies through the National Foreign Language Initiative.

We also think a strong effort needs to be made to bring transparency and accountability to the accreditation process. For such an extensive process, very little useful information is provided to students and families at the end of the process. Better defined standards and significantly improved data reporting needs to be a priority of the reauthorization of the HEA.

Question 6a. High school students need a better understanding of the requirements to enter college and how to afford it. What is the role of the Commission on the Future of Higher Education as related to the alignment of high school to postsecondary education? In what way will the commission be addressing issues such as the transition from high school to postsecondary institutions and reducing the need for remediation?

Answer 6a. The Commission was established by the Secretary of Education to begin a national dialogue about the future of higher education in this country. The purpose of this Commission is to consider how best to improve our system of higher education to ensure that our graduates are well prepared to meet our future workforce needs and to participate fully in the changing economy. The Commission brings together members of the business, academic, and non-profit communities to address two main issues: the effectiveness of institutions of higher education in preparing our students to compete in the new global economy and ensuring that college is affordable and accessible. These issues are directly related to the transition from high school to postsecondary education.

Question 6b. In what way will the Commission be addressing issues such as the transition from high school to postsecondary institutions and reducing the need for remediation?

Answer 6b. Questions surrounding the transition to postsecondary education and reducing the need for remediation are a part of the overall discussions the Commission is undertaking. There have been two meetings to discuss college preparation and access issues, and the Commission is tasked with developing a national strategy on this issue. The Commission will submit its final report with specific findings and recommendations by August 1, 2006.

Question 7. You have said that you hope States will put more pre-algebra into their elementary schools so that 8th graders will be able to complete algebra before entering high school. Could you please describe how Math Now aims to achieve this goal and how this can support No Child Left Behind's goal of proficiency by 2014?

Answer 7. The National Math Panel will be advising the Department on key practices, principles, and components of sound math instruction (similar to those found in Reading First) for the proposed Math Now for Elementary School Students program. The Panel will also be recommending practices, principles, and components to guide intervention through the proposed Math Now for Middle School Students program to help prepare every student to take and pass algebra. The goal of preparing every student to take and pass algebra in order to be better prepared for rigorous middle and high school coursework strongly supports NCLB's 2014 proficiency goal.

Question 8. With the increasing emphasis of scientifically based research in education, how can you assist States in learning what interventions work, especially at the high school level, to increase achievement? What can be done to better disseminate this information so teachers can take advantage of best practices within their classrooms?

Answer 8. The Department of Education provides information to teachers and others about promising education practices and disseminates it widely on the Agency's Web site (www.ed.gov) and through ED Pubs. The Department has been encouraging and financially supporting more scientifically-based research about various education interventions. The What Works Clearinghouse was established in 2002 by the Department of Education's Institute of Education Sciences to provide educators, policymakers and the public with a central, independent and trusted source of scientific evidence of what works in education. Each WWC Report examines the effects of replicable programs, practices, products, and policies that are designed to improve student outcomes within a topic area. The review process for WWC Evidence Reports is thorough, scientific, and objective. The studies reviewed for each topic are determined by an exhaustive search of published and unpublished research literature, including submissions from program and product developers.

Question 9. Our competitiveness relies as much on rural students succeeding as it does with urban students. In September 2004, the General Accountability Office released a study that I requested, together with Senators Conrad, Collins, and Johnson, suggesting the Department of Education could do more to provide specific assistance to rural districts to help them comply with the No Child Left Behind Act. What plans do you have to follow up on the recommendations of this report, beyond what's already been done?

Answer 9. On January 11, 2005, the Department provided a response to the recommendations made in the Government Accountability Office (GAO) report, "No Child Left Behind Act: Additional Assistance and Research on Effective Strategies Would Help Small Rural Districts" (GAO-04-909). There were two recommendations in this report, both of which the Department agreed to implement. Since that time, the Department has taken steps to improve communications, outreach, and assistance to the rural community to help them to comply with the No Child Left Behind Act. Listed below are excerpts from the recommendations given by GAO at the time, along with the action steps taken by the Department.

Recommendation (1): "... provide additional assistance to States on approaches small rural districts can use to implement student proficiency provisions and teacher qualification requirements, including the application of new flexibilities."

The Department has implemented this recommendation. The Department's Rural Education Task Force has continued to work with key program staff to examine ways to improve the Department's outreach to rural school districts. Secretary Spellings has re-invigorated the task force, realigning its membership to reflect the organization structure that she has put in place. The current Task Force has regularly scheduled meetings and has increased its outreach to organizations and educators interested in rural education. In December 2005, for example, the Task Force Chairman, Acting Assistant Secretary Beto Gonzalez, and the Task Force Executive Director, Linda Hall, met with the rural forum of the Council of Chief State Schools Officers to discuss issues relating to No Child Left Behind and its implementation in the rural education community.

In support of the Rural Education Task Force, the Department has established a Center for Rural Education. The Center's Director, Dr. William Smith and staff members have held several meetings with members of the rural education community, including focus groups with rural teachers, administrators, and organizations.

Recommendation (2): "... focus on effective scientifically based methods to improve student performance, and ... conduct studies on the services that can help small rural districts meet student proficiency provisions in light of the unique challenges that these districts face."

As stated in the original response, the National Research and Development Center on Rural Education has received an award to conduct rigorous research to identify effective education practices for increasing student achievement and improving the teaching and learning environment for rural students. Secretary Spellings recognized the strong tie between this research effort and the focus on rural issues within the Department. To ensure that these initiatives remain coordinated, she included the newly confirmed Commissioner of the National Center for Education Statistics on the Rural Education Task Force.

Question 10. A number of reports by various groups, in business, Government, and private research entities, place a great deal of emphasis on technology literacy in the growing economy. As you know, No Child Left Behind authorizes funding designed to help schools integrate educational technology to improve student performance. In recent years, this has received declining support from the administration. If Congress were to eliminate funding for this program, as suggested by the Presi-

dent, are there competing programs that would be able to support the improved technology literacy of students?

Answer 10. Districts seeking funds to integrate technology into teaching and learning can use other Federal program funds to accomplish this goal. Integrating technology in the classroom through these means, rather than through a separate authority, will help and ensure that students are exposed to technology in all areas of education and encourage better coordination across programs, rather than making technology a separate, somewhat isolated concern.

Activities to support technology-based professional development as well as technology activities related to school-based reform efforts are allowable activities under the State Grants for Innovative Programs authority. For example, a district may wish to spend their State Grants for Innovative Programs funds to integrate technology into a reading curriculum, in order to increase student achievement in reading as well as expose students to useful technological skills. Also, programs such as Improving Teacher Quality State Grants and Title I Grants to Local Educational Agencies support many local, school- or district-based activities that make use of technology in student instruction or teacher professional development.

Further, flexibility provisions under the NCLB Act permit districts, if they choose to do so, to transfer or consolidate certain Federal funds in order to carry out activities, including technology programs, that meet specific local needs. For example, under the State and Local Transferability Act, most LEAs may transfer up to 50 percent of their formula allocations under certain State formula grant programs to their allocations under: (1) any of the other authorized programs; or (2) Part A of Title I. Therefore, an LEA that wants to implement technology programs may transfer funds from its allocations received under the authorized programs to its State Grants for Innovative Programs allocation, without having to go through a separate grant application process.

Question 11. Under the American Competitiveness Initiative, there are a number of proposals to increase math and science skills for our Nation's students. Would you share with us a description on advancing the education of students with disabilities and how to increase their access to postsecondary education and to be competitive in the global economy?

[Editor's Note: The response to this question was not available at time of print.]

RESPONSE TO QUESTIONS OF SENATOR ENSIGN BY SECRETARY SPELLINGS

Question 1. In your statement you mentioned that 13 different Federal Agencies are currently overseeing 207 different math and science programs that are funded by the Federal Government. While I agree that these programs most likely represent, as you said, a lot of flowers and very few weeds, I would like to know what is being done to coordinate the math and science programs that are funded by the Federal Government. Is it anticipated that the proposed National Math Panel would take a role in the coordination of these programs? Is there an entity that determines the overall effectiveness of the 207 current Federal programs?

Answer 1. The recently signed Deficit Reduction Act of 2005 established the Academic Competitiveness Council. This Council is to be chaired by the Secretary of Education with membership from the agencies responsible for managing existing Federal programs that promote math and science. The Academic Competitiveness Council will map out the current landscape of Federal math and science education programs to determine where programs are duplicative and where there might be opportunities for new programs to address currently unmet needs. The Council will also set principles for guiding and metrics for measuring programs on an ongoing basis. For elementary and secondary programs, we want to extend agencywide the principles of No Child Left Behind—using the best available evidence to help those who need it most, providing flexibility and local control, and using assessment to measure the increase in student achievement. It is our intention to convene this Council as soon as practicable.

Question 2. Many proposals related to math and science programs mention the importance of teacher access to curriculum, especially scientifically-based and effective curriculum. What role is the Eisenhower National Clearinghouse playing in this effort? Are teachers using this source to access classroom curriculum? What could be done to make the efforts of the Clearinghouse more widespread?

Answer 2. The Eisenhower National Clearinghouse (ENC) for Mathematics and Science Education was not reauthorized through NCLB. This administration did not seek its reauthorization nor did it request funding. When the authorization for it

expired, Congress extended the Clearinghouse with appropriations language through fiscal year 2004. The Clearinghouse was discontinued by the Department on September 29, 2005. While many teachers and administrators actively used the Clearinghouse as a resource, the administration was not comfortable disseminating resources that were not necessarily based upon proven scientific evidence.

Note: The ENC materials are still available on the Internet as a subscription service that offers math and science resources on professional development, lesson plans, web resources, and other topics. The Web site, goENC.com, is run by ENC Learning Inc. at Ohio State University.

Question 3. While I believe that parental involvement is the most important factor of student success, a successful and well-qualified teacher in the classroom is a close second. What initiatives are currently underway in the Department of Education to enhance science and math teachers' knowledge and preparation for the classroom? What kind of partnership could be fostered within the proposed Adjunct Teacher Corps with businesses like IBM and Intel that are already encouraging employees to get their teaching certificate?

Answer 3. This initiative will be consistent with the principles of NCLB's highly qualified teacher requirement—teachers must know the subject they teach. The Department already provides \$2.8 billion through Title II the Improving Teacher Quality State Grants program. This new initiative would create an Adjunct Teacher Corps that would draw on the skills of well-qualified individuals outside the public education system to meet specialized teaching needs in secondary schools. The initiative would concentrate on helping schools find experienced professionals who would be able to provide real-world applications for some abstract mathematical concepts being taught in the classroom and, in some cases, provide individuals to teach temporarily in hard-to-fill positions.

Funds would be used to make competitive grants to partnerships of school districts and States (or of school districts and appropriate public or private institutions) to create opportunities for professionals with subject-matter expertise to teach secondary-school courses in core academic subjects, particularly in mathematics and science. Adjunct teachers might teach one or more courses on the school site on a part-time basis, teach full-time in secondary schools while on leave from their jobs, or teach courses that would be available online or through other distance learning arrangements.

Question 4. How does the Department envision the America's Opportunity Scholarships for Kids fitting into the American Competitiveness Initiative? How would they help breed competitiveness in our Nation's schools and benefit our children most in need of assistance with academic assistance?

Answer 4. America's Opportunity Scholarships for Kids builds on the commitment made under NCLB to help all students reach academic proficiency by 2013–14 by empowering parents with educational choices, enabling students to participate in high quality educational environments, and making schools more competitive by strengthening schools in need of improvement. The program recognizes that students who attend schools undergoing restructuring should have educational options, and to that end, the program provides scholarships for these students to transfer to a public or private school of their choice or receive supplemental educational services (SES).

The American Competitiveness Initiative is a comprehensive strategy to keep the United States the most innovative country in the world by helping struggling students gain math expertise, expanding students' access to AP and IB courses, encouraging more individuals to become math and science teachers, and improving research into math education.

While America's Opportunity Scholarships for Kids and the American Competitiveness Initiative are distinct programs, they both contribute to competitiveness in our schools and benefit children who need academic assistance.

We know that increased choices for parents mean better academic results for students. Students who are scholarship recipients will be able to participate in a higher quality educational program than they would have in absence of the scholarships, and because of that, these students are more likely to succeed in the critical areas of math and science. We expect these students to be better prepared for their post-secondary years.

As students transfer to new public or private schools or take advantage of SES, this will also breed competitiveness among schools undergoing restructuring. As the restructuring schools lose students, they face an incentive to revamp their curriculum and strengthen the quality of their teachers. Thus, America's Opportunity Scholarships for Kids may also enhance the academic program offered at schools un-

dergoing restructuring and encourage these schools to implement rigorous math and science courses, as well as recruit teachers who are highly qualified to teach in these subjects.

RESPONSE TO QUESTIONS OF SENATOR HATCH BY SECRETARY SPELLINGS

Question 1. Thank you for testifying before the committee, Secretary Spellings, and laying out the President's ambitious education initiative. Recently, Utah has been laying out its own plans to increase emphasis on math and science and to prepare students to compete globally. This effort is being led by our Governor, the Utah State Legislature, and the Utah State Board of Education. Specific to math and science instruction: Utah is among the top five States in the numbers of students who take rigorous math courses.

- Utah ranks third in Advanced Placement participation and success. The State has some International Baccalaureate programs in place and is expanding these programs to other high schools.

- Still Utah has far too many students struggling through math, as early as the 4th grade. Therefore, the Utah State Board of Education has an initiative currently before the State legislature that, if funded, would provide intensive and personalized help to students who struggle in math in grades 4 through 6. This initiative would also require elementary math endorsement, with an emphasis in math content, for all teachers in grades 4 through 6.

- Utah is continuing to emphasize greater achievement among minority populations at all ages and is pleased to note that data suggest these students are beginning to improve.

Secretary Spellings, Utah leaders have informed me that they do not wish to see an increase in Federal coordination of math and science programs. Utah leaders continue to strongly urge that control of public education needs to remain in State hands. Utah leaders believe that education is best managed at the local levels.

Overall, do you think the President's initiative allows for State control and flexibility? How do you envision that would be accomplished under the plan?

Answer 1. Within the American Competitiveness Initiative (ACI), the States will continue to control the expectations for what students learn in mathematics, how such achievement is measured, and what interventions are taken to help those students who are struggling in mathematics. These decisions are made by and will remain with the States. The thrust of this initiative is to improve the quality of mathematics instruction by providing clear, research-based guidance to States and by inserting accountability into the many numerous mathematics and science programs funded throughout the Federal Government. To be clear, this initiative is designed to address a looming national concern—the fact that too few students are well prepared for college in a world where postsecondary education is essential to future jobs and a quality of life. I am pleased to hear that Utah has begun to address this concern by ensuring that elementary teachers have the necessary subject matter knowledge to teach mathematics to the highest levels possible. These Federal initiatives will complement that work.

First, the work of the National Math Panel will help States answer the question about “what works” to help students learn math. These individuals will review the research to understand the critical components and principles of mathematics instruction, thus taking the guesswork out of instruction for teachers, principals, and other educators. Second, building on that analysis, States will have an opportunity to participate in two programs designed to improve the math knowledge of elementary and middle school students. In no case will the Federal Government prescribe a curriculum or direct a particular approach to teaching mathematics. Instead, this initiative will provide clear, research-based guidance to teachers about what works best in teaching mathematics and will also provide funding for initiatives designed around that information at both the elementary and middle school level.

The ACI will also invest in two key activities that will help ensure many more students get access to high quality and rigorous mathematics, science, and foreign language instruction. The first will provide funds to State and local education agencies to increase the number of teachers who are qualified to teach the Advanced Placement and International Baccalaureate programs. The second sparks local innovation to find and place adjunct teachers who have experience and knowledge in critical areas such as mathematics, science, and foreign language instruction.

Question 2. Secretary Spellings, I am very appreciative of your leadership over the last several months and am particularly grateful for the time you have personally devoted to Utah's concerns. As you are well aware, State leaders continue to ask for changes to the No Child Left Behind Act and have expressed reservations about

expanding it to the high school level. As Secretary of Education, I believe it is your duty to regularly consult with State representatives in order to ensure that any national education plan honors the role of State leadership in public education.

Please outline for me how you plan to expand NCLB to high schools and still preserve State leadership and control over education.

Answer 2. I continue to listen to State and local leaders regarding the concerns, challenges, and successes they are experiencing as they educate students. This role, as you point out, is a fundamental one to my position as Secretary of Education, and a priority as I move into my second year as secretary. I meet regularly with local and State educators, business leaders, elected officials, and parents to understand how the Federal Government can work with States to encourage innovation and reduce the achievement gap. Here is some of what I am learning and hearing. Based on one recent study, more than three-quarters of Americans believe that if our high schools don't change soon, our country will be less able to compete in the global marketplace. About 90 percent of the fastest-growing jobs of the future will require some postsecondary education. About three in ten 9th graders do not graduate on time, or that for black and Hispanic students the figure is about 5 in 10. We cannot ignore those facts but instead must find a way to improve the high school experience and work with States to do so.

The high school initiative as proposed preserves State leadership in education while ensuring that the focus remains on improving rigor in high school, identifying where students are struggling, and helping them graduate from high school with a meaningful diploma. The President's High School Reform Initiative would hold high schools accountable for providing high-quality education to all students. And it would help educators implement strategies to meet the needs of at-risk high school students. The proposed program would make formula grants to States to support:

- The development, implementation and evaluation of targeted interventions designed to improve the academic performance of students most at risk of failing to meet State academic standards; and
- Expanded high school assessments that would assist educators in increasing accountability and meeting the needs of at-risk students.

This initiative has two main roles: a focus on students who are struggling in high school and a means of identifying which students are struggling with the addition of State assessments. Utah already assesses high school students in three high school grades, and in that respect, is a leader for the Nation. This is exactly where we hope the rest of the States will soon follow.

RESPONSE TO QUESTIONS OF SENATOR SESSIONS BY SECRETARY SPELLINGS

Question 1. Is the Alabama Math, Science and Technology Initiative one that other States should employ? How can you help achieve this?

Answer 1. We are certainly pleased that Alabama is placing a focus on increasing student achievement in Math and Science. In general, the Department is supportive of programs that are proven to raise the quality of Math and Science education for our children. For other States, we believe they can achieve gains in student achievement through programs outlined in the American Competitiveness Initiative. The AP/IB Incentive program will help encourage our children to make greater strides in math and science, and the Math Now programs will ensure that children get the support they need along the way. We aim to help States increase student achievement by working together to implement these programs successfully.

Question 2. I am concerned about the shortages that have arisen in the American workforce, particularly in the medical field. Because we don't have enough American doctors, we are forced to bring foreign doctors in, and many American students are attending foreign medical schools and then returning to practice medicine in the United States. This is especially true in rural areas. The problem is a complex one, including issues with medical school enrollment. There are not enough spaces in American medical schools to produce the number of doctors we need.

a. There has been a 39 percent increase over the past decade in the number of U.S. citizens with foreign medical degrees seeking to participate in the National Resident Matching Program.

b. 17 percent fewer of these students pass their Licensing Exam on the first try than citizens of other countries who attended medical school outside of the United States and their clinical training can be much less intense.

c. International Medical Graduates make up 25 percent of practicing physicians in the United States.

What do you think needs to change in order to both fully supply our need for physicians, and equip American students for the medical profession?

Are you aware of the declaration of the Association of American Medical Colleges that we need to raise medical school capacity by 15 percent, and that AAMC President Cohen states we need to expand medical school capacity by 30 percent?

Answer 2. Throughout the 1980's and 1990's, it was generally believed that there would be an oversupply or surplus of medical professionals. More recently, this view has changed with the AMA expressing skepticism about the surplus of physicians, and the Council on Graduate Medical Education reversing its policy to promote restricting the supply of doctors. Its most recent study (January 2005) recommends training more doctors. To some extent, the shift in views has already begun to have an impact. The Association of American Medical Colleges, for example, has reported recent increases in U.S. medical school enrollment. First-time enrollees in medical school increased by 2.1 percent over the past year. Of the 125 allopathic schools, 22 expanded their class size by 5 percent or more and 7 of these 22 schools boosted first-year enrollment by more than 10 percent.

The administration believes that we need to address at an early age and through postsecondary education the importance of innovation and scientific inquiry. The President has introduced the American Competitiveness Initiative (ACI), a multi-agency strategy focused on increasing our innovation and competitiveness in science and research.

Maintaining our leadership in science begins with encouraging students to take more rigorous secondary school programs and to major in mathematics and science fields at the postsecondary level. As part of the ACI, the administration is implementing two need-based programs to address this issue. At the postsecondary level, the President proposes increasing aid to first- and second-year college students who complete a rigorous high school program (\$750 for first-year students and \$1,300 for second-year students) through Academic Competitiveness grants. National Science and Mathematics to Retain Talent (SMART) grants will provide an additional \$4,000 to third- and fourth-year college students who major in math, science, and critical foreign languages. These two new grants will provide \$4.5 billion in new funding for students over the next 5 years. We believe these initiatives, along with No Child Left Behind at the elementary and secondary levels, will better prepare students for entry into the medical professions.

In the short run, one way to address the shortage is to ensure that restrictions are not placed on U.S. students' ability to enroll in foreign medical schools. The current requirements of the HEA impose safeguards that should be retained to ensure that those trained are adequately prepared to practice in the United States. Until capacity at our Nation's medical colleges has increased, we need to be careful not to impose new restrictions. This will allow students attending foreign institutions, as well as domestic medical colleges, to take full advantage of the Federal student loan programs in which loan limits for graduate and professional students will increase next year.

What can we do to help fill this domestic need?

We need to encourage students from an early age to pursue medicine. We can accomplish this goal by hiring more teachers to teach higher-level science courses; offering a strong science curriculum with an emphasis on experiential learning in medicine; and recruiting persons from the medical community to mentor younger students. Once students are interested in the field, we need to offer financial incentives through our student aid programs that allow them to complete their studies and not incur overwhelming debt. Finally, we need to recruit more minorities and women to pursue medicine for a diverse physician pool. By having a long-range strategy that starts in elementary and extends through postsecondary education, we can increase the number of students interested in the medical field.

Question 3. Reports show that male enrollment in higher education continues to decline. A recent article in the Weekly Standard¹ points out that at colleges across the country this fall, 58 women will enroll as freshmen for every 42 men. There has been tremendous success in ensuring that girls take advantage of educational opportunities, but boys are clearly falling behind.

a. Only a few fields like math, computers, engineering and the physical sciences continue to have more males than females, and the total number of graduates in these areas is stagnant or declining.

¹The Weekly Standard, January 2-9, 2006; Where the Boys Aren't: The Gender Gap on College Campuses by Melana Zyla Vickers.

Response a. That is correct, and that is why the President's American Competitiveness Initiative is so important. This is a nationwide initiative that will better prepare all elementary, middle, and high school students in math and science, regardless of gender, so that they will be able to compete in the workforce or in higher education.

b. The number of bachelor's degrees is growing, while the number of engineering degrees is declining (in California between 1992 and 2002, the public university system experienced 11 percent more bachelor's degrees, but 8 percent less engineering bachelor's degrees).

Response b. Through SMART grants, students obtaining science, technology, engineering, and mathematics degrees will be eligible for additional student aid. With more students being exposed and challenged with rigorous math and science coursework in elementary, middle, and high school, more interest in those subject areas will be eventually seen in higher education as well.

c. American companies are now turning to foreigners because there aren't enough graduates in quantitative fields. A shocking 40 percent of all master's degrees awarded by American institutions in science, engineering, and information technology go to foreign students, as do 45 percent of all Ph.D.s in those fields.² Some have said that our reliance on foreign sources for math, science, and technology may be due to the lack of attention to boys in education.

Response c. To ensure a strong and prosperous America in the 21st century, our students must possess the mathematics knowledge that is the foundation of our Nation's long dominance in science, technology, and innovation; graduate from high school prepared to enter college or the globally competitive workforce, and master critical foreign language needed both for success in the global business arena and to ensure our national security. The President's budget request addresses each of these challenges.

What suggestions do you have on reaching males at a young age and ensuring that they realize their full potential? Do you have any plans in place to deal with this problem?

Answer 3. While the Department does not specifically target males in its programs, many of our programs are focused on helping young people meet their educational goals. The High School Reform initiative will help ensure that the services of GEAR UP, Upward Bound, Talent Search, and Educational Opportunities Centers, of which approximately 40–45 percent are males, are part of a broader effort to provide States and localities with the resources to address retention, access, and the transition to college for all students.

Laura Bush's Helping America's Youth Initiative has been able to highlight at-risk youth, especially boys, by educating parents, communities, and schools.

In addition to No Child Left Behind at the elementary level, the President's High School Reform initiative will help educators implement strategies designed to meet the needs of at-risk high school students and hold high schools accountable for providing high-quality education to their students. Interventions will be designed to increase the achievement of high school students, eliminate gaps in achievement between students from different ethnic and racial groups, and help ensure that students graduate with the education, skills, and knowledge necessary to succeed in postsecondary education and in a technology-based, globally competitive economy. Specific interventions could include programs that combine rigorous academic courses with vocational and technical training, research-based dropout prevention programs, the use of technology-based assessment systems to closely monitor student progress, and programs that identify at-risk middle school students for assistance that will prepare them to succeed in high school and enter postsecondary education, including college preparation and awareness activities for students from low-income families.

Question 4. The idea to attract professionals working in high-need fields into teaching is a great one, indeed. As a parent, I would love to know that my child was being taught science by a former engineer, or learning about math from a former accountant. I have been impressed with organizations such as Teach for America, which has trained 14,000 individuals since 1990, and the American Board for Certification of Teacher Excellence, in which over 700 individuals have earned or are pursuing alternative teacher certification.

a. There is, however, opposition and resistance to alternative teaching routes from those who assert that teaching can only be fully understood by going through a traditional education-degree program.

² According to a study of the gender gap in education by the Business Roundtable in Washington, D.C.

b. **How do you answer these challenges, and are there any particular organizations you have seen that show quality results in bringing professionals into the teaching field, equipping them to teach effectively, and providing continued support for those new teachers?**

c. **What unique skills can professionals bring from their fields that you believe will benefit students?**

[Editor's Note: The response to this question was not available at time of print.]

QUESTIONS OF SENATOR MURRAY TO SECRETARY SPELLINGS

Question 1. The President's budget again proposes school vouchers through the America's Opportunity Scholarships for Kids program. The President's education budget also eliminates 42 programs. We often hear that the programs are proposed for elimination because they are ineffective. However, there is no evidence that private school vouchers do anything to improve achievement for any students. Further, we still have yet to see any real evaluation of achievement under the DC voucher program.

In such a tight budget, how does the Administration justify spending \$100 million on a program that has yet to be found effective?

Question 2. Secretary Spellings, you and I have previously discussed our mutual interest in improving our Nation's high schools and I hope we can continue that conversation. As you know, I have my own bill on high school reform called the Pathways For All Students to Succeed Act. My bill focuses on improving literacy and math skills, academic counseling including creating graduation plans with students and their families, accurate calculations and data collection on high school graduation rates, and funding to turn around low performing schools using best practices.

The President's budget eliminates the Perkins program, GEAR UP, and part of the TRIO program and effectively creates a block grant and would require more testing at the high school level. You and the President have said that the idea would be to allow States to determine how to spend that block grant—if they determine career and technical education to be most needed to fund that, if it's GEAR UP, fund that. The problem with that theory is that all of these programs are needed along with new ways and investment to improve our high schools. Further, the overall funding for the high school initiative and the cuts to programs that go to high schools don't add up.

Considering that the President is proposing a high school block grant to States, how does he think that will improve problems in high schools such as high dropout rates amongst poor and minority students or a lack of academic preparedness for postsecondary education?

Question 3. One of my constituents, Bill Gates, is doing critical work with our Nation's high schools through the Gates Foundation. He speaks about our Nation's high schools as a question of morals and values and I couldn't agree more. The Federal role in education has traditionally been to ensure that disadvantaged students are receiving an equal education but it is exactly those students, poor and minority students, who are dropping out at the highest rates.

What is the Department of Education doing at the high school level to target improving education for those students?

Question 4. Only one-in-three 18 year olds is even minimally prepared for college and the picture is bleaker for poor and minority students. High school students—especially those most at risk of dropping out of school—need sound advice, strong support and an advocate to ensure they are getting all the support and services they need to take rigorous courses and have a plan in place for graduation and life after high school. Every student must have a clear graduation plan that assesses their needs and identifies coursework, additional learning opportunities and other supports to make their goals a reality. The President's budget includes \$1.475 billion for high school reform highlights the use of individual performance plans for students entering high schools as a key strategy to ensure all students graduate with the skills necessary to succeed in postsecondary education or careers. My bill, the PASS Act, contains a similar proposal.

Does the Department agree that this sort of individualized attention is critical to both preventing students from dropping out and succeeding through high school and beyond?

Question 5. The fiscal year 2006 Budget Reconciliation bill created SMART grants. To receive the grants, students must have completed a rigorous secondary-school program of study.

How do you anticipate judging what constitutes a rigorous secondary-school curriculum?

[Editor's Note: The responses to Senator Murray's questions were not available at time of print.]

[Whereupon, at 11:40 a.m., the committee was adjourned.]

